

BUTANE-PROPANE *News*

DECEMBER 1961

For
Rent
Summer Comfort

A CHILTON PUBLICATION

HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

Seasons
Greetings



WARREN PETROLEUM CORPORATION
TULSA, OKLAHOMA

double life in HACKNEY double bottom cylinders

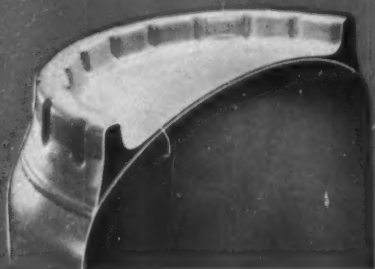
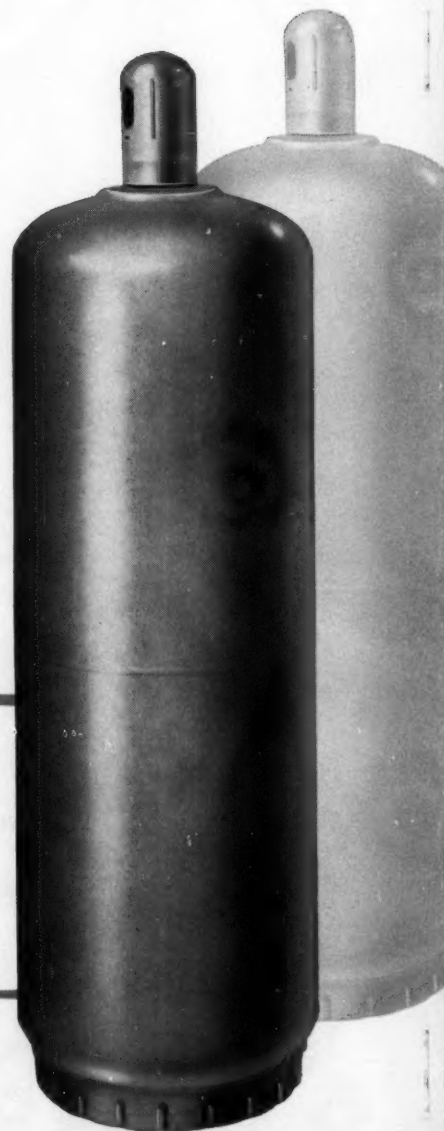
Resists rust and corrosion—smooth, rounded contour of the second full bottom head leaves no place for rust or corrosion to form. Cleaning and painting are less time-consuming.

Eliminate crushed foot rings—integral fluted foot ring and double-bottom head construction, welded all around, add the strength needed to withstand rough handling...save costly repair and foot-ring replacement.

Won't pack mud, snow or ice—broad, shallow, fully rounded bottom offers no chance for accumulations of compacted materials.

Outlast other cylinders by years—Hackney DOUBLE-BOTTOM head cylinders end bottom failure for many years beyond the life of conventional cylinders.

Save you time and money—with double the life, you save in maintenance time, repainting dollars, and replacement costs!



Cross section shows how Hackney patented DOUBLE-BOTTOM head construction is stronger, doubles cylinder life, and reduces maintenance time and replacement costs.

Check your cylinder bottoms now. Then call your nearest Hackney representative for quantity prices and delivery dates.



Pressed Steel Tank Company

Manufacturer of Hackney Products
1487 South 66th Street, Milwaukee 14, Wisconsin
Branch offices in principal cities

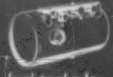
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cylinders



systems



fuel tanks for
trucks and tractors



lift truck
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bulk storage tanks



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GAS FLOOR
FURNACES
ARE EASIER TO SELL**

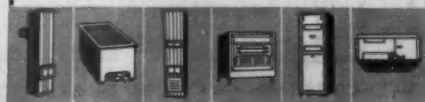
Outstanding value is the reason why Empire outsells all others. Sell more units. Satisfy more customers. Keep more profit! Write today for the complete Empire Floor Furnace sales plan.



MAIL THIS COUPON TODAY
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Send information on Floor Furnace Sales Plan.

NAME.....
DEALER NAME.....
DEALER'S ADDRESS.....
CITY.....
ZONE..... STATE.....





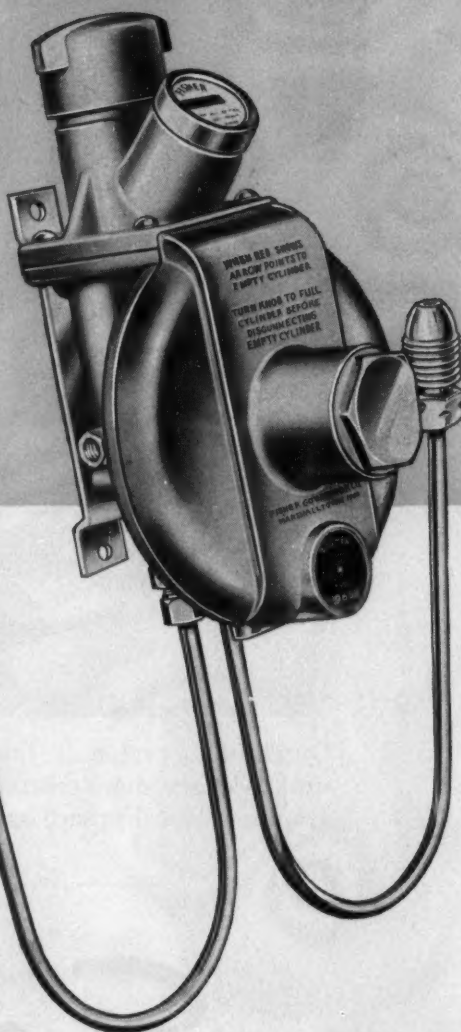
Little Joe says, "NO INTERRUPTIONS PLEASE"

You get Automatic Changeover with the Type 965B



NOW AVAILABLE WITH REMOTE INDICATOR

803 remote indicator supplied with 10 feet of tubing, fittings and bracket for installing outside of kitchen window.



Fisher has taken a fine regulator and made it even more useful

Multiple cylinder systems are operated with full automatic changeover when the Fisher Type 965B is used. Service is continuous from one cylinder to the next.

Optional remote indicator permits in-the-home check of gas supply. This extra measure of customer convenience means extra profit to you.



For additional details on the Series 965B with Type 803 remote indicator, or any LP Gas control equipment, write...



IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD...CHANCES ARE IT'S CONTROLLED BY...



FISHER GOVERNOR COMPANY Marshalltown, Iowa

SINCE 1880

BUTANE-PROPANE News

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BEHIND THE SCENES

Kitchen virtuoso

IF YOU SUBSCRIBE TO PAGEANT, you may be aware that there's a famous chef who carries the rather lyrical nickname of "The Propane Bernstein." But if you don't . . .

The man's real name is Rudolph Stanish, and he is best known as King of Omelets. Says Pageant (in its October issue): "He has made eggs as exotic as pheasant under glass." Among his dozens of tempting recipes are such items as Rabbit Omelet and Omelet with red caviar and sour cream. Stanish has prepared them for famous folk across the country and abroad.

Says Pageant further: "Indispensable weapons in his cupboard arsenal are seven cast-aluminum skillets and seven propane-gas stoves, which he prefers because they heat faster than ordinary gas or electric stoves and are more mobile."

Apparently as big an attraction as his omelets is Stanish himself. His display of virtuosity as he moves nimbly from stove to stove has inspired one spectator to dub him "a propane Leonard Bernstein."

The Pageant article contains two of Stanish' recipes, and they sound mouth watering. Maybe you should get a copy of the magazine and try them. Don't forget your seven propane stoves.

No lighters here

THE MONTH'S GRABBAG OF MAIL HELD THE USUAL QUOTA OF INQUIRIES FROM ABROAD; among them was this communication from one Njoo Siauw Ting, of Djl. Beteng No. 68, Semarang, Indonesia:

"Dear Sirs: Herewith I beg to inform you that I am possessed of your "Butane Gas Lighter," but after having used many years ago, now I am in trouble with my lighter, because the Gas Cartridge is

unserviceable and this cartridge is not for sale here.

"Therefore, if you don't make difficulties, I will be pleased to receive this cartridge, for which I thank you very much.

"I trust that you will soon be in position to send me the cartridge, I am,

"Yours faithfully,

Njoo Siauw Ting."

To set the record straight, should it be now crooked, we do not—repeat *not*—sell, make, fabricate, or distribute butane lighters. Mr. Ting (or would it be Mr. Njoo?) knows this, but the New York post office, which dispatched the letter to our New York office, apparently does not. The envelope was addressed simply to "The Butane Gas Lighter, New York, U.S.A." Whether the post office was putting a rather overly broad interpretation on our motto, "Headquarters for L. P. gas information since 1931," or whether we were simply the first "Butane" the P.O.'s directory searchers ran across in the telephone directory, we don't know. But if Mr. Ting is listening, we hasten to assure him that his letter has now been duplicated and mailed to the manufacturers of butane lighters. Like him, we sincerely hope whoever makes the lighter will soon be in position to send him the cartridge. Now what's your problem?

BACK TALK

Fact sheets—eye opener

Ventura, Calif.

I have just gone through the 15 pages in the October BPN on "Eight Industrial Market Fact Sheets," and want to tell you how fine an article that really is. I feel that every salesman dealer in the industry should get a reprint of these fact sheets and go to work im-



Merry Christmas

From the world's oldest propane tank manufacturer

The
MASTER LION

The emblem of
MASTER quality
for...

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STORAGE TANKS
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DELIVERY UNITS

PLANT PROCESSING VESSELS

The Master Lion... for twenty-six years the symbol of leadership in steel fabrication. Know-how and experience have built the Master Lion into a sure sign of safety and performance on every Master product. Master tanks are shipped all over the world from centrally located plants in Quincy, Illinois and Dallas, Texas, attesting to their quality in fabrication

and design. The next time you have need of the best, the finest and the foremost, call on a Master Man!



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RIDGID®
65R-TC
RATCHET THREADER
 with new True-Centering
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Gives Better Threads Faster 4 Ways!

Here's Why:

One set of dies threads 1", 1¼", 1½" and 2" pipe and conduit... no dies to change. • Fast-to-set, True-Centering Workholder

centers dies for true threads every time • Easy adjustment for accurate "drip" threads • It's jam-proof... automatic kick-out —prevents jamming.

RIDGID 65-RC with Cam-Type Workholder Also Available.

Call your Distributor today. For your convenience, he maintains a complete stock of **RIDGID** Work-Saver Pipe Tools and parts!

RIDGID

The Ridge Tool Company, Elyria, Ohio, U.S.A.

Back Talk

mediately in applying the useful information.

I have been in the LPG business 30 years, beginning with experiments in the use of the fuel in gas engines, and your fact sheets proved to be a real eye opener.

Every writer in the securities field, too, should have this fine resume of LPG application information. But the LPG dealer and salesman need it most.

EDWARD A. STRATMAN

Fact sheets—training course

Richmond, Va.

I congratulate you on the article in your October issue concerning the fact sheets on industrial uses of gas. This fits in very well with our program, and we are using the article as a training course. At our monthly managers' meeting, we spent approximately an hour on the metal cutting section.

ROBERT E. LEITCH
 Bottled Gas Corp. of Virginia

More on coin meters

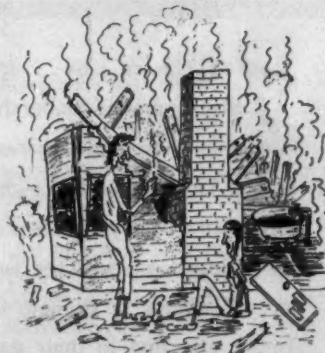
Nassau, Bahamas

In your September 1961 issue, "Information Desk," there was an inquiry on coin-operated gas meters, and who manufactures them.

These meters are manufactured by Parkinson Cowan International, Ltd., Terminal House, 52 Grosvenor Gardens, London, SW1, England.

W. K. DUNCOMBE
 Bahamas Gas and Fuel Co., Ltd.

"THE BIG DEAL BOYS"



Kermitt Bulla
 Hercules Casualty Insurance Co.

"Yer right! There is a leak."



"We gained 550 new accounts"

"In addition, we've upped our annual sales by 500,000 gallons since changing to Texaco LP-Gas 6 years ago," says D. O. Shepard, Sheppard Bros. Gas Co., Sylvania, Ga. "With Texaco we can depend on getting all the product we need, summer or winter, when we want it. And, the Texaco people are friendly and helpful. That's why we sell the best...Texaco."

5 reasons why you can prosper with Texaco

1. Texaco is jobber-minded. Proof: 842 Consignees and Distributors of Texaco Products have been with Texaco over 20

years, some over 45 years.

2. Profitable and proved sales policies. Texaco does not compete with its independent Distributors of LP-Gas.

3. Dependable, efficient delivery in a new fleet of tank cars, from 31 strategically located production areas.

4. Immediate acceptance. Texaco LP-Gas is sold under the nationally-known trademark, the famous Texaco red star with the green "T."

5. A product of highest quality — moisture-free.

TEAM YOUR NAME with Texaco for a promising future. Send

coupon today: Texaco Inc., LPG Sales Division, P.O. Box 2420, Philtower Bldg., Tulsa, Oklahoma; 3350 Wilshire Blvd., Los Angeles, California; Texex, 237 Seventh Avenue, West, Calgary, Alberta, Canada.

I would like complete information about the possibility of becoming a Texaco LP-Gas Distributor.

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STREET _____

CITY _____

STATE _____



"Our Ford Super Duty tractors save us an estimated \$270,000 yearly!"

says President L. J. Trahan of Propane Corporation, Baton Rouge, Louisiana

"We calculate our total truck expense on a combination of price, depreciation, trade-in value, fuel, oil, tire-battery-accessory replacement costs, taxes, insurance, licenses and payloads hauled. Our accounting proves that Ford Trucks save us an average of 10¢ per mile. And since we log more than 2,700,000 miles a year, this saving amounts to an estimated \$270,000!

"The ruggedness of Ford Super Duty V-8's and the success we've had in converting them to run on LP-Gas are two major reasons for this long-range economy. From our first '56 Ford Trucks on, they have consistently outperformed most other


equipment we've ever owned. Our tractors spend about 20 out of the 24 hours a day on the road. As one comes in to a terminal, another driver is ready to take it out again with stops only for fueling or preventive maintenance. We have Ford tractors with 450,000 road miles and many extra engine hours to their credit. These truck engines often run over 660 hours a month because they also work to pump an average of 8,500 gallons of LP-Gas at each unloading.

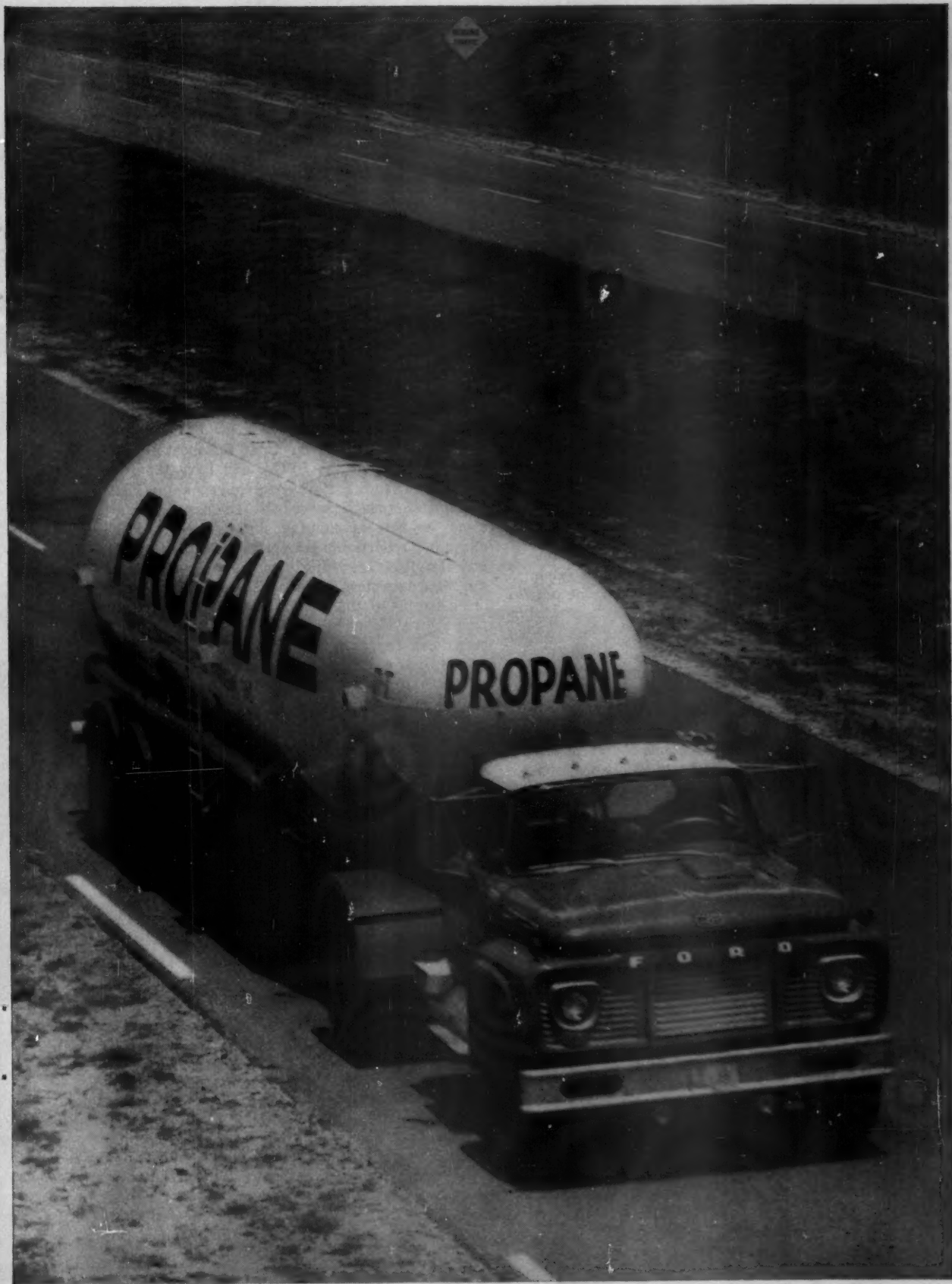
"As far as we're concerned, Fords are major-league money-makers . . . we have two more F-950 Super Duties on order now."

Solid testimony that Ford's full-time economy only starts with low price!

FORD TRUCKS COST LESS



PRODUCTS OF  MOTOR COMPANY



The industry in action

ASSOCIATIONS

Study of Council-LPGA merger okayed

The proposed consolidation of L.P. Gas Council and the Liquefied Petroleum Gas Association—long only a gleam in the eyes of a few—took a giant step toward becoming a reality during successive meetings of the boards of directors of both groups late in October in Hot Springs, Va.

In separate meetings, both the Council and the LPGA boards voted to allocate funds to hire an "outside consulting firm . . . to study the feasibility of a merger and, if feasible, to propose a suitable plan."

That was the recommendation of a joint merger study committee. In accordance with further recommendations made by the committee, each group has set aside \$10,000 to cover the fees of the outside consulting firm and a subcommittee is presently studying the qualifications of four such organizations.

When chosen, the consulting firm will have two basic tasks with the second one predicated upon the first. Initially, the firm will have to determine if a merger is feasible. That is, will the merger bring about a substantial increase in membership participation, income and effectiveness? If the consulting firm's study does show such feasibility, then the second part of its task will be to devise the mechanics of a merger.

According to information received by BUTANE-



This new 30,300-gal. w.c. tank car is being delivered to Wanda Petroleum Co. of Houston, Texas. It is designed and constructed by General American Transportation Co., and will be used in the shipment of LPG and anhydrous ammonia. Shown above are (left to right): Charles Hutchinson, Wanda; D. E. Johnson, GATX; C. F. Montgomery, Wanda; H. L. Schaeffer, T. W. Faulk, F. W. White, all of Missouri Pacific Railroad Co., and W. D. Ray, Wanda.

PROPANE News at those meetings, it is expected that once chosen, the consulting firm would require four to six weeks to determine the feasibility and perhaps three to four months to come up with the mechanics. The cost of the feasibility part of the study was estimated at the meetings as being somewhere between \$5000 and \$7500. Should the consulting firm veto the merger idea, the remainder of the original \$20,000 will be returned to each group, again on a 50-50 basis.

Other major developments at the meetings: The 2869 members of the LPGA will have their dues raised as of Jan. 1, 1962. After a report of Finance Committee—which showed that the association's income "to date is running slightly under 1960"—and other reports indicating that the LPGA's plans and activities are being hamstrung by a diminishing funds surplus, the increase in dues was voted.

The terms of the dues increase (which was first proposed in May, 1960 and was deferred twice since then) call for the creation of two new classifications: Groups 12 and 13. The former will include members grossing between \$4 and \$5 million in annual business and the latter will include those with over \$5 million. Annual dues for Group 12 will be \$2600 and for Group 13 \$3000. Group 11, which was the top classification, will be limited to those members doing between \$3 and \$4 million in annual sales; dues will be \$2200.

In addition, all members will have their annual dues raised nine per cent. That increase—to be assessed annually for the next five years—will be diverted into the association's surplus funds account. If and when the surplus fund grows, the percentage of the increase will be lowered accordingly.

Those percentages are: Ranges, 20 per cent of total shipments reach L. P. gas field; water heaters, 12.4 per cent; furnaces, 8.5 per cent; conversion burners, 2.8; direct heaters, 27.4; vented, 18.5; floor furnaces, 25 per cent and incinerators, 3.1 per cent.

The Council's Board, after also hearing plans for promoting the industry's 50th anniversary next year, reviewing advertising and dealer sales aids programs, and approving a \$519,475 budget for 1962 (up \$14,475 from '61) elected the Tappan Co.'s A. B. Ritzenthaler as Council president to succeed Pyrofax' D. G. O'Meara. Fred Ramseur, Cities Service Petroleum Co., was elected chairman of the executive committee and James Donnelly, of A. O. Smith, was re-elected secretary-treasurer.

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There's a complete line of Grove Flexflo regulators for pressure reducing and back pressure services. Flexflos can be supplied self-operated, pilot-operated or with Grove electric, pneumatic and hydraulic operators. A single moving part—a silently flexing rubber tube that can never slam, stick or wedge, makes Flexflos simple, dependable. The tube assures positive shut-off even though foreign matter may be trapped between the core and tube. In cast iron or steel; screwed end: 1" to 3", flanged end: 2" to 12". Control pressure ranges from 2 psi to 1500 psi.

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GAS BACK

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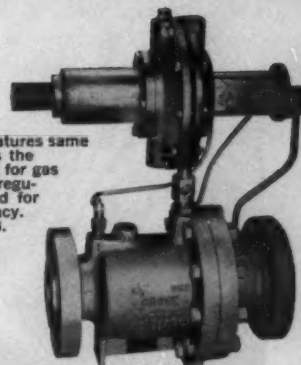


Model 838, self-operated, gas dome-loaded. Setting is fast, easy, without springs or pilots. Recommended for natural gas, air and liquids. Bulletin #888-D.

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PRESSURE
REDUCING
FLEXFLOS*



Model 820 where extreme accuracy is critical. Sensitive, spring loaded model 820 Grove pilot is a diaphragm controlled, three-way throttling valve. Seven adjustable spring ranges from 2 psi to 1200 psi. Send for Bulletin #813-B.



Model 80-836 features same type of pilot as the 80-820, adapted for gas back pressure regulation. Designed for extreme accuracy. Bulletin #813-B.

*Grove Sets
Regulator
Standards
for Others
to follow*



Model 80-898A, designed for "pounds to ounces" pressure reduction. For inlet pressures to 100 psi and adjustable control ranges from 2 ounces to 20 psi. Bulletin 813-B.



Model 80-833, for low pressure services. 833 pilot is available with three adjustable spring ranges: 10-30 psi, 15-75 psi and 25-150 psi. Bulletin #813-B.

The industry in action

AGA Labs approve "fallout" heater

Chattanooga Royal Co., Chattanooga, Tenn., has developed a new gas heater and food warmer designed specifically for fallout shelters. The heater is the first such heater to be accepted by the National OCDM and approved by the AGA Labs.

The unit, operating on either natural or L. P. gas, is approximately 16 by 26 by 6 in. in size and has a 10,000 Btu input with an automatic safety pilot.

MARKETS

Fuel cells—a threat or promise?

"It is likely that fuel cells will serve as power sources in special application within the next five years." Fuel cells to furnish electricity at home are "entirely conceivable," so reported James D. Flynn of the Cincinnati Gas & Electric Co., at a symposium on fuel cell developments and applications during the fall general meeting of the American Institute of Electrical Engineers.

According to Flynn, more than 60 governmental and industrial fuel cell projects, costing \$28 million annually are now under way.

He felt that it is entirely conceivable that there will be a period in our future when central power

stations will give way to individual fuel cells in every home.

He also pointed out that "fuel cells present both a promise and a threat to the electric utilities. Their remarkable efficiencies promise to lower production costs of electricity. But since they are efficient in small sizes as well as large, they potentially can put each home owner in the power plant business." The greatest role of fuel cells will be to power mobile equipment.

LPG-best fuel for fallout shelters

Frigikar Corp., Dallas, recently designed an "automatic-electro fallout utility system" to function entirely on LPG, according to Bert J. Mitchell, president.

He stated that the reason for the complete use of LPG as the fuel was because it does not deteriorate.

The system comprises an automatically controlled electric power plant, multiple radio-active fallout air separators, air conditioning and forced air systems. The unit is capable of operating for a month without refueling.

REGEIMBAL: WASHINGTON

FTC approves selective price cuts

The Federal Trade Commission now says that a supplier can cut his price to only one customer if it is necessary to keep an established customer (but not to capture new business). Meanwhile, the U. S. Supreme Court has agreed to rule on whether the Justice Department can enforce a Robinson-Patman Act ban on "unreasonably" low prices. This decision will set the fates of below cost sales. The Court will rule whether the Act's language — "unreasonably low prices" — is too vague to be enforceable.

Champion price cutter: Uncle Sam

The government has been told by its own auditor something that private industry has been telling it for years—it's selling its electric power too cheap.

In the case at hand, the auditors, the General Accounting Office, pointed the finger to three federal projects run by the Interior Department. These were Wolf Creek, Center Hill, and Dale Hollow projects in Kentucky and Tennessee.

The auditors noted that the power from these three projects was sold illegally—too cheaply to comply with the law. The Federal Power Commis-



Delegation of LPG marketers recently met with Department of Agriculture officials in Washington, D. C., to discuss the farm research projects which the department is now conducting and is planning for the near future. Among those present were (from left) M. J. Crafton, Owensboro, Ky., chairman of LPGA's national affairs committee; Mrs. Lenore S. Thye, chief of the housing and equipment laboratory, USDA; Eugene G. McKibben, agricultural engineering research director, USDA, and E. Otto N. Williams, Richmond, Va., president of LPGA.

**"the best
cost-cutter and
business-
builder we've
ever discovered."**



"I wouldn't take our radio out now if it cost **twice** what it did." That's how Victor Lagrange, president of Home Gas and Fuel Co., Inc. of Lake Charles, Louisiana feels about Motorola 2-way radio. His records **prove** that savings in mileage and phone bills alone, more than pay for his radio—so that means the savings in driver time and the resulting additional business can be counted as **profit**. And Mr. Lagrange has found new accounts easier to open and old ones easier to hold since he can provide swift, reliable radio dispatched service. You owe it to yourself to find out how Motorola 2-way radio can cut **your** costs—add to **your** profits. Get a demonstration soon.

GET THE COMPLETE PROFIT STORY—MAIL THIS COUPON TODAY



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RADIO**

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Dept. ABN-149

A Subsidiary of Motorola, Incorporated,
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- ☐ Mail me full fact kit on 2-way radio
☐ Have representative telephone for appointment

Name _____ Title _____

Company _____ No. of Vehicles _____

Address _____ Phone _____

City _____ Zone _____ State _____

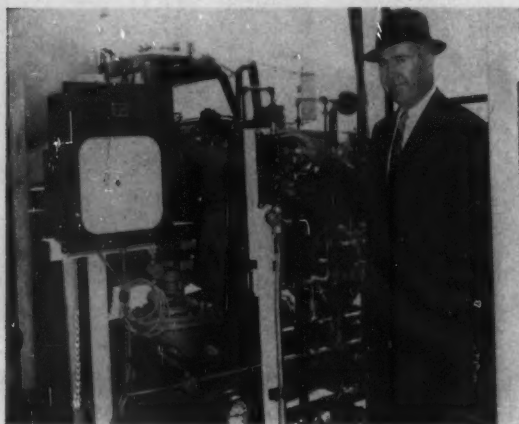
The industry in action

sion, which passes on rates of federal projects as well as private power firms, rejected the Interior Department's rates in 1958.

But this failed to stop the public power bureaucrats in the Department from selling the power from the three projects to the Tennessee Valley Authority at these disapproved rates anyway.

Interior Department officials defended their actions by saying that Congress hadn't objected. They brushed aside the fact that the federal investment in the three projects was \$11.6 million higher than they carried on their books—\$114.0 million rather than \$102.4 million. They ignored the auditors' note that the TVA should pay (and base its resale rates on) a 2.5 percent interest rate as with all other such sales, instead of a 2 percent rate now being charged.

The auditors also noted that the Army Corps of Engineers, which built the projects, and the Interior Department staff still argue over how much the three projects cost, a situation that is somehow reflective of government efforts to operate in the industrial field.



President Robert E. Thomas of Mid-America Pipeline Co., Tulsa, Okla., turns a valve to open the company's new Ogden, Iowa terminal. This facility will serve central Iowa distributors and users. According to Thomas, a 100-mile extension will be built next year to Charles City. Mid-America also plans to boost the pumping capacity of the west leg through the installation of pumping stations at Abilene, Kansas, and Beatrice, Nebraska. Capacity will increase the west leg north of Conway, Kan., to 43,500 bbls daily. It will increase capacity north of the company's line at Conway to 75,500 bbls daily on the two legs of the line.

No TVA in West, says administration

Officials of the Kennedy Administration are trying to calm fears that the government is moving to set up a giant Tennessee Valley Authority in the West or to nationalize the electric industry.

Fears stem from the power line grid proposed to link the huge federal power dams of the West. Instead, top Administration spokesmen say, they want a cooperative effort between federal and private power systems.

Interior Secretary Udall and Assistant Secretary Kenneth Holum have repeatedly in recent months disclaimed plans to create any new TVA-type projects. But, at the same time, they make it clear the Administration plans a vastly-expanded federal power program—"development of the nation's power resources"—with or without cooperation of private power groups.

REA power cooperatives will play a major role in this expansion, they say.

Decision near on jumbo car rates

Final decision was near last month on the controversy over rates on shipments of L. P. gas in jumbo tank cars. Hearings before the Interstate Commerce Commission wound up in late October, and the hearing examiner was preparing his recommendations to the commission.

Dispute centers around special low rates now in effect on these big tank cars (18,500 to 30,000 gal.). The railroads put the rates into effect under protests by several oil companies.

Opponents of the new rates claim that they are too low to compensate the railroads for the cost of transportation. They offered as evidence several 1960 traffic cost studies, and comparable costs of truck and pipeline transportation.

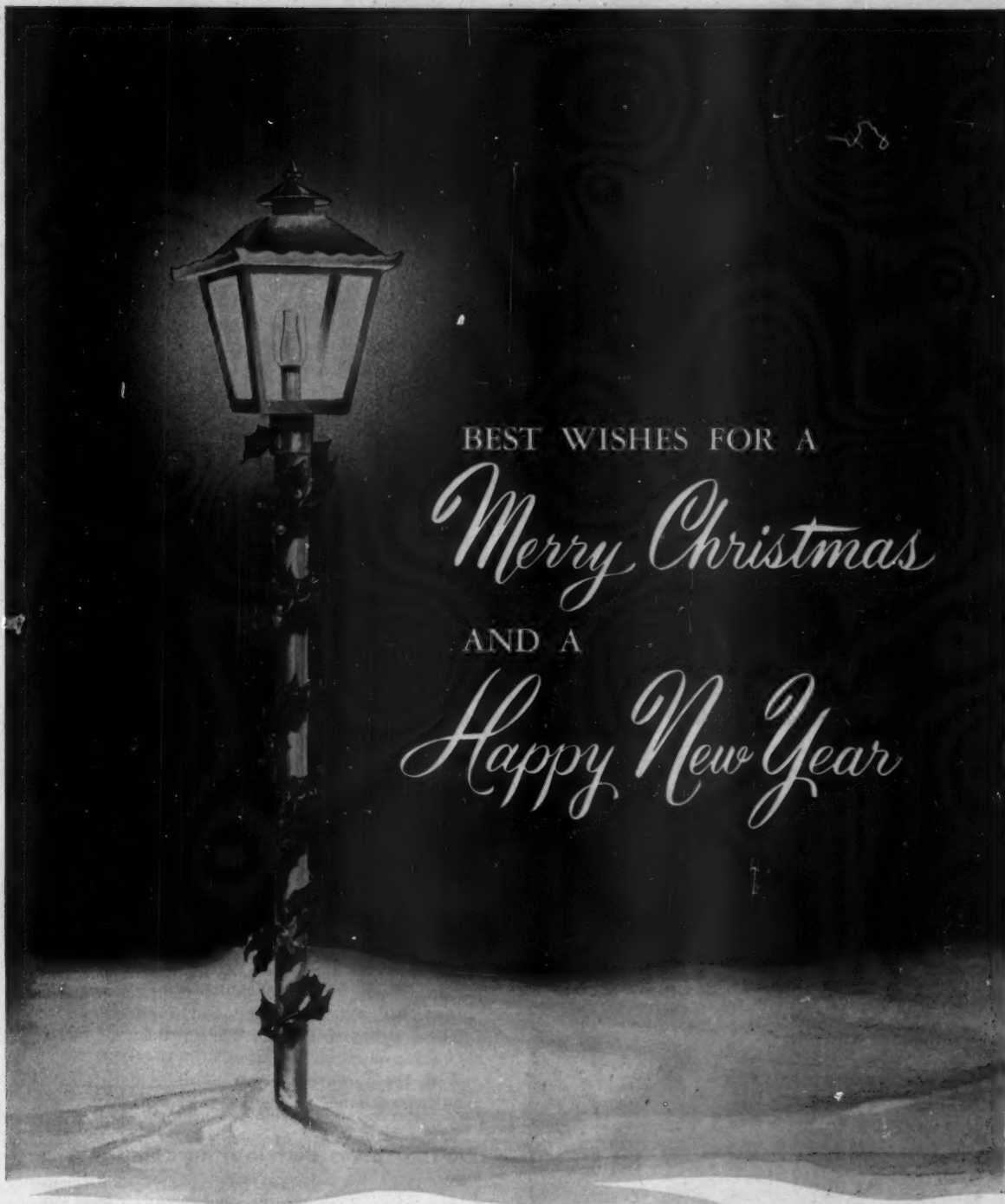
The railroads argue that other commodities, including petroleum naphtha and acetate, are moving between similar points in jumbo cars at identical or lower rates.

SUPPLY & TRANSPORTATION

Wood River is busy scene for Tuloma

Wood River, Ill., is going to become an important center of activity for Tuloma Gas Products Co., Tulsa, Okla. In two separate announcements in recent weeks the company revealed that:

- A new 240,000-bbl LPG storage facility has been mined out of limestone at the Wood River



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AND A
Happy New Year



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The industry in action

refinery of American Oil Co., a Tuloma affiliate.

• A storage terminal will be built there to handle shipments of anhydrous ammonia, under an expanded sales program.

The newly completed LPG storage facility, mined 335 feet below the surface of the earth, is actually two separate cavities. The largest, a 190,000-bbl capacity cavern, will be used solely for storing liquid propane. The other, with a 50,000-bbl capacity, will be used for propylene. Products will be shipped in and out of the terminal in Tuloma's new 30,000-gal capacity tank cars.

The anhydrous ammonia terminal will be constructed by the affiliate American Oil at Wood River and Texas City, Texas. Each terminal will have an initial capacity of 30,000 tons and be capable of handling barge and jumbo tank car deliveries. Two barges, each with a capacity of 1700 tons of anhydrous ammonia, will be placed into service to connect these terminals with producing plants.

Hamilton elected president of Dixie

R. P. Hamilton, Atlanta, Ga., was recently elected president of the Dixie Pipeline Co. Formerly president of Southeastern Pipe Line Co., he succeeds F. B. Neptune of Phillips Pipe Line Co., one of the founders of Dixie.

Ralph P. Dougherty, formerly with Minnesota Pipe Line Co., was elected vice president.

Dixie's 11,000-mile LPG system is now under construction between Texas and North Carolina.



Edward B. Blackman, Corken's Inc., Oklahoma City, is shown giving Senor Jose Ovidio Martinez of Langmar, of Buenos Aires, Argentina, the details of the company's 490 compressor. Sr. Martinez (right), Corken's distributor in Argentina, visited the plant in late October.

SUPPLIERS

"Farm tractor" film produced

A slide film presentation, "Selecting a Farm Tractor," has been prepared by Warren Petroleum Corp., Tulsa, Okla. Purpose of the film is to encourage farmers to compare all cost factors involved before selecting an LPG, gasoline, or diesel tractor. Materials included with the film prove the economy of LPG.

The film is available on loan from Warren.

Below-cost appliance selling charged

Republic-Transcon Industries, Inc., Beverly Hills, Calif., last month requested the Los Angeles County Superior Court to enjoin California manufacturers of gas water heaters from selling below cost.

Republic charges the defendants sold units below cost in order to destroy competition. The firm claims that some manufacturers have had to discontinue making water heaters as a result.

Defendants named are: American Appliance Manufacturing Corp., Day & Night Manufacturing Co., Utility Appliance Corp., Mission Appliance Corp., General Water Heater Corp., Pioneer Water Heater Corp., Rheem Manufacturing Co., A. O. Smith Corp., and Hoyt Heater Corp.

MARKETERS

American Propane buys 2 companies

American Propane Gas Co., Omaha, Neb., recently bought two southeast Nebraska propane companies: Ward King Propane Service Co. of York, with plants also in Friend and Shelby; and the Davison Propane Service Co. in Beatrice, which also has a plant in DeWitt.

With these and other purchases, American Propane expects sales to top 10 million a year.

Barton forms distributing company

The Donbar LPG Corp. has recently been formed in Denver to market LPG products throughout the state of Colorado. Don B. Barton, formerly manager of LPG sales for Skelly Oil Co., is president of the new company.

Donbar will distribute LPG products under the Skelgas brand through 10 Colorado bulk plants.

NEWSBRIEFS

Last month, the FTC dismissed, for lack of proof, charges that Rural Gas Service, Inc., West-



10,500 W.G. Mississippi Tank T-1 Steel Transport owned by Honolulu Gas Co., Ltd., Honolulu, Hawaii

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In addition, the 10,500 water gallon capacity transport loads out 8,200 gallons of butane in 70 minutes at the refinery and unloads in 50 minutes at Honolulu Gas Company's Kapalama Yard! The company reports that when propane becomes available in November, the unit will haul about 9,300 gallons and still be within the 72,000-lb. G.V.W. limit.

And making money for Honolulu Gas along with this unit will be a second Mississippi Tank Transport recently delivered to our 50th state!

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American Meter

field, Mass., entered into unlawful exclusive-dealing contracts with distributors of its LPG. (For more details, see April BPN, p. 58.)

Algas Fuel Supply Co., a Union Oil Co. of California subsidiary, recently acquired all of the stock of **United Propane Gas Service, Inc.**, of San Francisco. Included are 10 plants in Washington and Oregon.

News notes . . .

Humble Pipe Line Co. recently announced the construction of eight miles of 6-in. pipe line in East Baton Rouge parish, designed to handle LPG products . . . **Saks Fifth Avenue**, New York, is advertising "LeLuminaire"—candles lit with butane gas. Each candle burns for four or five hours . . . **Richards Industries, Inc.** recently acquired **Dover Corp.'s OPW-Jordan Division**, Cincinnati manufacturers of regulator and control valves . . . **A. O.**

Smith Corp., Kankakee, Ill., recently became a member of the residential division of the national **Better Heating-Cooling Council**.

People . . .

Howard J. Goss—from vice president of sales at **Harper-Wyman Co.**, Chicago, to vice president—director of marketing . . . **Dante E. Broggi** was recently elected treasurer and member of the executive committee of **American Meter Co.**, Philadelphia. **John Gribbel II** was recently elected as a director of **American Meter** . . . **G. L. Brennan** recently retired from the position of senior vice president of **Warren Petroleum Corp.**, Tulsa, Okla. . . **Clare R. Wolf**, was recently named executive vice president and director of **Tuloma Gas Products Co.**, Tulsa, Okla. . . **John W. Collins**—from president of **Walworth's** subsidiary, **Grove Valve & Regulator Co.**, Oakland, Calif., to president of the **Walworth Co.**, New York.



CURRENT L.P. GAS & L.R. GAS PRODUCTION & INVENTORIES

(A.P.I. figures—in thousands of gallons)

	Propane	Butane	Bu-Pro Mix	Iso-Butane	Other Mixes	Total LPG	Total LRG
Production (U.S.)							
October '61	381,960	173,303	54,191	66,169	85,831	761,454	276,761
October '60	367,459	164,644	47,764	52,170	81,382	713,419	256,753
'61 to date	3,728,345	1,902,324	538,769	665,189	820,935	7,675,562	2,751,855
'60 same period	3,434,301	1,730,082	538,818	558,024	705,476	6,966,701	2,663,664
Inventories (10-31-61)							
Zone A	16,845	3,913	20,758	32,900
Zone B	73,179	15,102	...	1,534	948	90,763	37,621
Zone C	189,305	30,532	1,398	5,684	58	226,977	15,318
Zone D	139,655	11,996	22,960	1,850	177	176,638	12,359
Zone E	250,122	276,949	928	49,208	16,258	593,465	120,998
Zone F	333,578	81,392	778	26,096	27,142	468,986	8,060
Zone G	5,182	1,206	8,575	...	149	15,112	818
Zone H	795	325	67	119	145	1,451	52,989
U.S.	1,008,661	421,415	34,706	84,491	44,877	1,594,150	281,063
U.S. (10-31-61)	785,294	331,513	35,076	25,238	12,877	1,189,998	141,761



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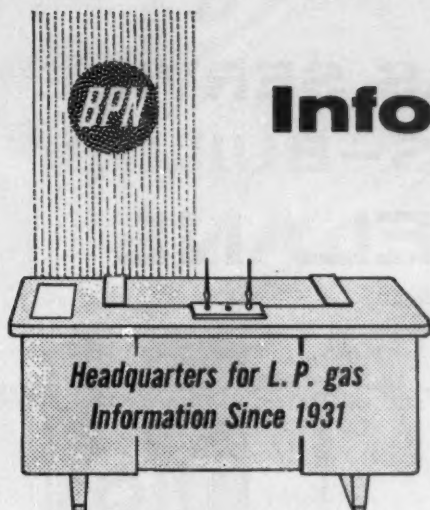
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Information Desk

Formula for calculating equivalent gallons of propane vapor in tanks . . . How to determine physical constants for commercial LPG . . .

Formula for calculating propane vapor in tanks

North Carolina

What is the formula for calculating the equivalent gallons of propane vapor in 30,000- or 18,000-gal tanks?

D. W. M.

The formula for calculating the equivalent gallons of propane vapor in 30,000 or 18,000 tanks is as follows:

$$V_2 = \frac{V_1 \times P_1 \times T_2}{7.48 \times P_2 \times T_1 \times K}$$

Where V_2 = Volume converted to gallons of liquid at 60 deg F

V_1 = Volume of containers (water capacity)

P_1 = Pressure in container psia (at elevation of tank)

T_1 = Temperature in vessel = 460 + deg F

P_2 = 14.7 (absolute base pressure)

T_2 = Base temperature = 60 deg F = 520 deg ABS

K = Cu ft LPG vapor per equivalent gallon at 60 deg F and 14.7 psia

K varies with the quality of the fuel, that is pure propane will produce 36.45 cu ft per gal, while pure normal butane will produce only 31.79 cu ft per gal. Mixtures of the two will produce quantities of vapor in proportion. Check your supplier's shipping papers to determine the value of " K " for the fuel you are measuring.

However, when you want to determine the amount of L.P. gas con-

tained in the vapor space of a partially filled tank, you can do it in the following manner:

Assume the container has a water capacity of 30,000 gal and that the liquid volume gauge indicates the container has 40 per cent of its capacity filled with liquids. This leaves 60 per cent of the vessel's capacity, or 18,000 gal, filled with vapor.

Then, 18,000 gal represents the volume occupied by the vapor and will be substituted for V_1 in the formula. Other numerical values will be substituted for the symbols in accordance with the explanation in the list. V_2 is then calculated and the quantity thus determined is added to the volume of liquid in the container to give the total equivalent gallons of L.P. gas the tank contains.—Ed.



Physical constants for commercial LPG

Florida

From time to time we who are handling L. P. gases are at somewhat of a loss to determine the exact Btu content of the various types of L.P. gases and the several mixtures. Would you please send me the latest available information, spelling out the exact Btu content of the various types and mixtures of gas on the market at present?

P. F. H.

Pure propane and pure butane have heating value that have been very exactly determined, and these heating values are consistent. The pure gases can be produced and are available—for a price. There is little need for

the chemically pure product except for laboratory purposes or a few special jobs which do not require volumes.

Commercial products contain varying amounts of neighboring hydrocarbon compounds. With commercial mixtures of butanes and propanes, the variations may be endless in number. If you can obtain the analysis from your supplier, the exact heating value and other pertinent data can be calculated in the manner outlined and illustrated by Table No. 1, Part 2, Chapter 2 in the *Handbook Butane-Propane Gases*.*

Many members of the L.P. gas industry were aware that no consistent values of the various principal physical constants were published covering the commercial products of butane and propane. The Technical & Standards Committee of the LPGA canvassed the industry and, after considerable study, prepared a set of physical constants for commercial quality propane and butane. The values are as follows:

	Butane	Propane
Btu/cu ft	3,280	2,516
Btu/lb	21,221	21,591
Btu/gal	102,032	91,547
Cu ft/lb	6.506	8.58
Cu ft/gal	31.26	36.39
Lb/gal	4.81	4.24

The above constants are the average from the analysis of commercial products produced by a large segment of L.P. gas producing companies. Finding a carload of product that exactly meets the above analysis will be purely coincidental, but the majority of commercial products will meet the above figures within reasonable tolerances.—Ed.

*Handbook Butane-Propane Gases is published by BUTANE PROPANE News.

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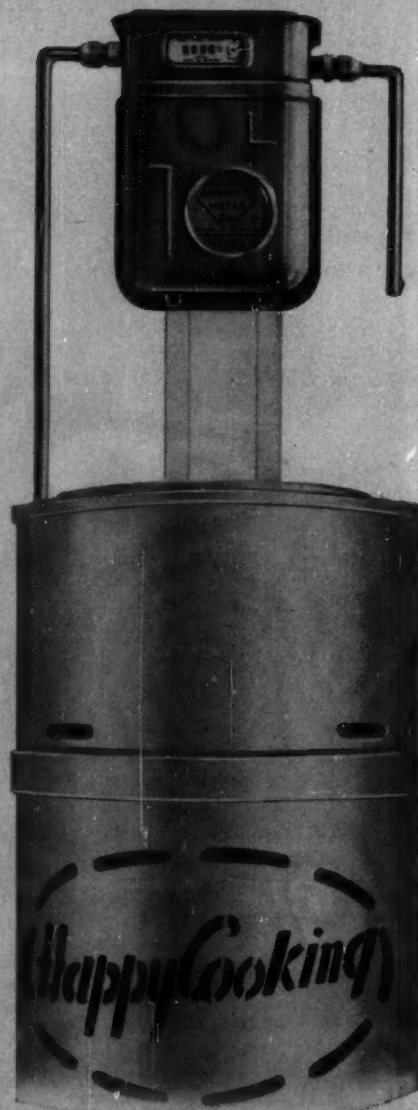
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Beyond the Mains

By WILLIAM W. CLARK • Editor



Lesson in lexicography

MANY OF THE ILLS THAT BESET TODAY'S SOCIETY STEM FROM MAN'S PECULIAR ABILITY TO CONTORT LOGIC TO SUPPORT HIS OWN VIEWS. Having arrived at an irrational, self-serving conclusion, he backtracks his way through a maze of faulty, half-true propositions in order to find "proof" of whatever it is he wishes to prove.

Not being privy to the workings of the mind of Kenneth Holum, Assistant Secretary of the Interior, I wouldn't be able to even guess at by what paths he arrived at his conclusions regarding the place of co-operatives in a free-enterprise society, but it must have been quite a trip.

The honorable Mr. Holum (who incidentally has quite a grasp of the oratorical idiom) recently delivered a most eloquent address before the Minnesota Association of Cooperatives at St. Paul. Those of his assertions that are quoted below are so untenable as to be in themselves not worth repeating; they *are* repeated here only to demonstrate the difficulties we face in any efforts to roll back the tide of co-operativism.

These are the Honorable Mr. Holum's verbatim arguments in trying to reconcile co-operatives with free enterprise:

"A lesson of history that we have all learned is that we must constantly prevent the strong from taking advantage of the weak. We have learned all too often that, given the opportunity, man will selfishly dominate his fellow man. . . .

"One of the most durable ideas that has contributed in great measure to the welfare of our people today, materially as well as morally, is the principle of doing business cooperatively. No other vehicle of economic activity better carries out democratic ideals of free enterprise or makes better use of human and material resources. . . .

"I happen to believe in capitalism and free enterprise. *And there is no finer example of*

either than our cooperative enterprises." (Italics ours.) "Down through the ages the cooperative has stood as a symbol of economic justice. One of the great by-products of the cooperative movement is not only the yardstick measurement of fair price and fair return that it has become famous for, but it has promoted by the the very nature of the cooperative way of doing business, a keener and broader interest in personal initiative, private ownership and interest in economic activities." (Mr. Holum needs a grammarian at this point.) "All of this is important to the preservation of democracy.

"Yet you and I both know here tonight that cooperatives have implacable enemies who spend millions of dollars to bring about their demise. I would not silence them, for I believe in freedom of speech and thought.

"But I would ask them if they can seriously claim devotion to the principles of free enterprise and in the next breath, challenge the rights of cooperatives to exist. I ask if anyone can honestly claim belief in preserving competition in business activity and yet call for legislative action to strangle the life out of cooperatives and thereby remove competition.

"Only last week I was reminded once again of the versatility and value of the cooperative method in helping people to help themselves. It was the story of how in Saskatchewan, Canada, the provincial government has assisted the Indians in the northern part of the province to a better way of living via the cooperative method. For years the Chippewas had been exploited by the Hudson Bay Co. and were kept in a constant state of poverty. Through cooperative organization, they gained the bargaining power which they never had before. . . ."

If Mr. Holum's assertions were not so appalling, they would be laughable. Apparently he



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Beyond the Mains (continued)

has chosen to blind himself to the facts. Let's analyze some links in the chain of his pro-cooperative argument:

"... prevent the strong from taking advantage of the weak." Which, Mr. Holum, is the strong—the independent, one-man L. P. gas dealer with a \$50,000 capitalization, up to his Adam's apple in debt (at prevailing market rates) or the coddled giant of a co-op, which can buy customers with 2 per cent government money and can bring tremendous economic pressure to bear against all competition?

"... no finer example of (capitalism and free enterprise) than our cooperative enterprises." I don't know what dictionary Mr. Holum uses, but the Webster's we have in our office puts the words "for profit" right in the definition of free enterprise. We have always been led to believe that co-operatives are not supposed to make a profit. That they do is a constant source of embarrassment. The dividends they return to their "patrons" (owners) still manage to escape taxation, so we can only conclude that they are not dividends at all, in the profit-making sense of the word, but something else that defies definition.

If it is true that there is no finer example of capitalism and free enterprise than our cooperative enterprises, it would seem to be unassailable logic that if every business in the U. S. were organized as a cooperative we would have reached the ultimate in pure capitalism and free enterprise. In such a situation, all businesses, being cooperatives, could operate tax-free. With this tremendous tax base removed, a crushing tax burden now carried by business would have to be shifted. Who would be left to pay it? The working man? The little guy whose very image has brought tears of emotion to the eyes of such as Mr. Holum for the past 28 years?

No, Mr. Holum, cooperatives are not the "finest examples of capitalism and free enterprise." They are an anomaly, purely and simply.

"I ask if anyone can honestly claim belief in preserving competition in business activity and yet call for legislative action to strangle the life out of cooperatives and thereby remove competition."

Is that simply a rhetorical question, Mr. Holum, or do you really want an answer? If you do, kindly rephrase it: we refuse to be led into a "have-you-quit-beating-your-wife" question.

The legislation that has been proposed in the past by those reactionary rascals in the Eisenhower Administration would (1) send the wealthy co-ops out into the money markets for

their funds just as the people we lump under "free enterprise" must do, and (2) place a single tax on dividends, which is considerably less than must be paid by corporations, where the profits are taxed twice. This would not seem to be an effort at strangulation, though we may be lacking the keen perceptivity of a man whose nimble mind can see co-operatives as our "finest examples" of free enterprise and capitalism.

It is either utter stupidity or the worst sort of demagogery to claim that efforts to put co-operatives on an equal basis with their competitors would "strangle the life" out of them. But even if the legislation proposed should do just that, it would not "thereby remove competition." In fact, it would probably be the best stimulus to competition that was ever initiated.

The final quote, concerning the Indians in Saskatchewan, was reproduced primarily to illustrate the confusion that exists as to the nature and purposes of co-ops. Apparently—though Mr. Holum does not make it too clear—this co-op was formed to enable the Indians to get a fair price for their produce. If this is true, it was a true "marketing co-op," and as such has merit. Unfortunately, as established today, co-operatives are considered as co-operatives, whether they engage simply in the joint marketing of the goods they produce or whether they buy and sell electricity, oil, gas, or imported Ming dynasty objets d'art.

Until at least the latter type of cooperatives are put on an equal footing with their competition, they will not be "the finest examples of capitalism and free enterprise," no matter what Mr. Holum says. They do not promote competition; they stifle it.

It might interest Mr. Holum to know that the persons most vitally hurt by the co-ops are the "little guys" who must compete with them. We would assume that, if this fact were impressed upon him, his answer would be that these same little guys should themselves form a cooperative. This would appear to be his cure-all for what ails the economy.

At intervals during the past few years we have plumped for education of employees in national affairs. We have applauded the efforts of Phillips Petroleum Co. and others who have undertaken this work. But sometimes we wonder if they haven't placed the cart before the horse. Education in the free enterprise system is not so sorely needed at the grass roots as it is at the top. What better place to start than in the office of the Assistant Secretary of the Interior? ■



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FAN AUTO ON

When City Gas air conditioned its own building with an engine-driven natural gas system, it went one step further and made an advertising tool of the installation. Small building at right, located in center of parking lot, has glass front so that operation of air-conditioning equipment can be watched. Sign says: "Gas air conditioning in operation." One of aims has been to spread the idea that gas is an air-conditioning fuel, and the leasing program has done much to carry this message.



For rent: summer comfort

CITY GAS CO. OF HIALEAH, FLA., AGGRESSIVE DISTRIBUTOR OF LPG and natural gas in the Greater Miami area, is building its summer load through a program of leasing gas-fired air conditioning equipment.

In a little more than a year, City Gas has installed 3- and 4½-ton central air conditioning units on 10-year leases in some 45 small business buildings, medical offices, small restaurants, retail stores, churches and nightclubs.¹ And the missionary work of the concerted sales and engineering campaign in this field is beginning to pay off in the form of unsolicited inquiries and decreased sales resistance.

Tailored specifically for small commercial installations, the lease plan is putting gas-fired air conditioning equipment into a territory where use of this fuel for comfort cooling has been virtually unknown.

When City Gas began distribution of natural gas in 1959,² one of the announced goals of the company was to tackle the air conditioning market as a way of leveling out the curve between winter and summer consumption. After research, planning and study, the leases-for-small-commercial-installation program was selected as the spearhead for the air conditioning drive because of the sales advantages it offered.

The lease program has been directed by Kenneth C. Kessler, City Gas sales manager. To handle most of the actual contact work and to maintain a steady concentration

EDWARD G. DICKSON

Installation of LPG-fueled air conditioning and heating system at church is inspected by Kenneth C. Kessler, City Gas sales manager (left), and Charles P. Mugele, sales engineer.



1. While the small commercial field is a handsome market on its own, City Gas officials hope to use the current campaign as a springboard to bigger loads. The exposure to gas as air conditioner fuel, as generated by the lease plan, will make it easier to sell installations, without leases, in buildings requiring bigger equipment and bigger gas loads, they feel. This market, however, will probably be limited largely to natural gas.

2. City Gas Co. actually has been a gas utility for a dozen years. Before the arrival of natural gas it distributed propane through a piped system. It also distributed LPG beyond the mains. For more information on the growth of City Gas, see BPN, December 1959, p. 32.

The target:

In Miami the "summer" is nine months long, so the cooling load is better than the heating load.

With a lease plan, City Gas Co., a combination natural gas utility and LPG marketer, has invaded this field.



Outlying offices of doctors or dentists or neighborhood medical clinics offer possibilities for leasing of air-conditioning equipment. The remote unit was installed on roof of this doctor's office in Coral Gables.



Small business offices, like this sales and management office for a firm manufacturing shampoo, are interested in lease arrangements for air conditioning.

on this goal, the company set up a one-man department in the person of Charles P. Mugele, sales engineer.

The first installation was made in June, 1960, to air condition the offices of a warehouse. This was experimental throughout but, because of the advance study which had gone into this plan, the lease arrangement and the installation steps were so satisfactory that later deals followed substantially the same pattern.

In studying the market, the company found that, in comparison with electric rates, there was no sales advantage where they were competing with residential room air conditioners. Neither was there any rate differential to capitalize on in central systems above 10 tons. But in the small commercial field, Mr. Kessler and Mr. Mugele found, there was a rate differential which would permit them to lease gas-fired equipment (more expensive than electric), fuel it and service it, at a saving to the consumer.

For example, on a 5-ton unit, the electric rate for air conditioning is 4.5 cents per kwhr. At 1.4 kwhr per ton input, the hourly operating cost on such a unit is 31.5 cents. With the corresponding L.P. gas equipment (a 4½-ton unit), at an hourly input of 180,000 Btu and a rate of 14.7 cents per gal, the operating cost is about 29 cents an hour.

L.P. gas does not offer as great a rate advantage as does natural gas, which costs about 15 cents per hour, but there still is some advantage. At a rate of 14.7 cents a gallon for propane, the operating cost on a 3-ton air conditioning unit runs about 19 cents an hour. With electricity it is 21-22 cents an hour. On a 4½-ton installation, the L.P. cost is around 29 cents an hour, against 31.5 cents for electricity.

"Because of our policy of no-charge-for-service and the advantages to the customer through the lease plan, we feel we are competitive with electricity with both types of gas, and could show him a sav-

ing even if the gas rates were 30 per cent higher than electricity," says Mr. Mugele.

Of the total installations made by leases to date, a dozen (or more than one-fourth) are using L.P. gas.

Under a lease agreement, City Gas assumes all service costs, including parts replacement. With electric air conditioning, service is charged for, in one form or another, except for parts warranties. "With our lease proposal we can show the prospect that the lease figure is the last figure; there are no additional costs to be taken care of some time in the future." Since the company is set up to provide free service on all its gas installations, this policy on lease systems has proved an inexpensive item to the company and a big selling point in lease negotiations, Mr. Mugele said.

Mr. Mugele found that public awareness and acceptance of the lease idea are general. There was little need to "sell" this part of the package. "The main thing is to point out that the lease figure is a complete tax write-off each month for the customer, since title to the air conditioning system stays with City Gas."

With these sales tools available, Mr. Mugele nevertheless found his missionary work tough going.

"In this area, the public associates air conditioning with electric

small commercial installations



City Gas installed its first leased air-conditioning system at this drive-in restaurant. Owners have found that an air-conditioned dining room is an important patronage builder. Sign on marquee plugs air-conditioned dining room.



In this church, the installation design of the system permitted the church to have, actually, two air-conditioning systems powered by one unit. It is possible to switch off the system from one section of the church building to another.

power. Many people just waved me away."

One successful technique was a comparison, if he could prevail upon the prospect to make it, of the differences in costs of equipment and operation of "a conventional air conditioning system" and "the City Gas Air Conditioning Plan."

A prepared pamphlet listed the items which should go into such a comparison. Mr. Mugele urged the prospect to obtain firm figures for these expenses and calculate what an electric-powered system would cost, in comparison with City's lease proposal.

Under the "conventional system" were listed, for maintenance and installation expenses: equipment costs, installation charges, monthly service contract, parts replacement, banking purchase charges, property taxes, bookkeeping expenses, and equipment overhaul. And under operation expenses for the same type of system were listed base charges (kilowatts times the rate) and demand charges. The two totals gave the complete monthly costs of owning and operating a conventional system.

Under the "City Gas Air Conditioning Plan" were listed only two items: base charges (therms times the rate) and the monthly lease plan payment. The total of these two items gave the gas system figure to compare with the electric system figure.

"This comparison is particularly telling because it shows up all the expenses connected with the generally accepted form of air conditioning," Mr. Mugele said. "And one thing that we could point out effectively is that the average life of a compressor used in a conventional system is seven years, meaning that the owner faced an overhaul bill at some time in the future. With our equipment, of course, that would not occur, because we assume all maintenance costs."

City Gas selected Bryant gas-fueled central air conditioning systems as the equipment for this campaign. These systems, often used in conjunction with central heating systems, are the heat absorption type, with the manufacturer's life estimate set at 17 years.

The Bryant equipment uses a remote chiller unit. In most of City's installations this has been placed outside the building. There it is easily installed, easily serviced, and easily removed if necessary; and noise and vibration are isolated from the building.

Inside the building, usually in the main duct, a coil is installed and a blower circulates the cooled air.

The equipment is adaptable to various installation situations, and in a number of cases has been combined with some form of gas heating, which can be turned on when the air conditioning system

is turned off and which utilizes the same interior distribution system.

City Gas contracts with air conditioning firms to engineer and install the systems, but the company provides the equipment. The air conditioning contractor thus takes over the job of obtaining necessary permits, checking on code requirements, making electrical connections, and other detail work, in addition to the main job of installing the equipment. A plus factor resulting from this arrangement is that air conditioning contractors thus are being exposed to the idea of gas-fired conditioning, after years of thinking in terms of electricity only.

For about six months the one-man City Gas air conditioning department had little to show but some "experimental" installations.

"But, suddenly, around Christmas time, when you would least expect interest in air conditioning, the contact work started to pay off," Mr. Mugele said. "Inquiries started coming in, both from people we had contacted and had given estimates to, and from others who had heard about our lease plan indirectly."

The program gained in volume

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

For rent

and activity and, although the total gas consumption from the air conditioning leases represents only a small portion of the company's gas distribution, it is considered the beginning of a substantial summer load. On each lease installation already made, the average consumption during the nine air-conditioning months is 300 therms^a a month, or 260 therms monthly average on a year-round basis.

Perhaps the outstanding success in the leasing field has been at a shopping center, a development which was piped for natural gas as it was being built. This center, known as a "strip" shopping center, as contrasted to a larger regional shopping center, opened with 24 store units.

Of the total, three of the shops were too large to be air conditioned with the equipment used in the lease plan. Three others were national chain units for which the

^a 3,300,000 Btu, or in excess of 300 gals of LPG.

plans were drawn in chain headquarters. Four stores, such as a coin-operated laundry and a paint store, were not interested in air conditioning. Six stores had not been rented when the center opened, and could not become prospects until a tenant was obtained.

Of the remaining 10 units, Mr. Mugele signed eight.

The contact in this case was the developer of the center. Mr. Mugele sold him on a plan for air conditioning the center's own administration office, on a lease plan, then obtained names of tenants as they became interested, and contacted them.

The lease system is particularly appealing to tenants coming into new shopping center quarters, Mr. Mugele said, because they are under considerable financial pressure, with rental payments, cost of fixtures and decorating, expenses of stocking the store and advertising it. A lease deal, which means they can have air conditioning without a large capital outlay, either in cash or financed, sounds good.

A dividend from this shopping

center success, he said, is that five air conditioning installations have been made at other locations as a direct result of the shopping center leases, and there have been at last 20 inquiries.

The first LPG installation was made early this year, at a drive-in restaurant in an area where natural gas is not yet being distributed. A 4½-ton unit was installed here to air condition the dining room. Drive-ins have found that to maintain patronage they need a comfortable dining room as well as car-hop service.

Among the best prospects for air conditioning leases using L.P. gas uncovered by Mr. Mugele are churches, restaurants and doctor's offices. Often these are located beyond or off the natural gas mains. Many doctors and dentists have moved into suburban areas to avoid traffic and to be closer to their patients. Restaurants, like churches, may be found almost anywhere.

A church in suburban Opa-locka is considered one of the most effective users of the City Gas lease plan, and the installation here is

happy
thought
for
business
man

now
you can
LEASE
gas
air
conditioning!

HAPPY THOUGHTS FOR BUSINESS MEN
Good News: You don't have to buy, install or maintain. Leasing of various types of equipment is an accepted good business practice that can save on capital outlay, expensive maintenance and installation investment. But... did you know that you could lease air conditioning? It is now from City Gas Company of Florida. Businessmen, professional men, clinic building owners can enjoy fresh, cool, circulating air from

**CARRIER DESIGNED—
BRYANT CENTRAL GAS COOLING UNITS.**
These small tonnage capacity units are available on a long term lease. Operation is so dependable... because it is gas.

CITY GAS COMPANY

PROVIDES ALL MAINTENANCE
Get summer comfort—
• one nominal charge.
• No service fees
• No parts to buy
• No "extras"

CITY GAS COMPANY

WILL DELIVER AND INSTALL
• Complete design and engineering
• Economical central installation
• Heating included in most cases.

PLEASE YOUR ACCOUNTANT
Beyond converting your capital, leasing has important advantages as a write off.

PLEASE YOUR SECRETARY
Complete comfort for efficient office routine. Only one responsibility for perfect cooling comfort—the gas company.

PLEASE YOURSELF
In many instances the rental plus the gas bill will be less than the operation cost of conventional type of system.

FACT COMPARISON

• Conventional AC System

Maintenance and Installation Expenses

Equipment Costs	\$
Installation Charges	\$
Monthly Service Contract	\$
Parts Replacement	\$
Banking Purchase Charges	\$
Property Taxes	\$
Bookkeeping Expense	\$
Equipment Overhaul	\$
Sub Total	\$

Operation Expenses

Base Charges (KW) × (Rate)	\$
Deducted Charges	\$
Sub Total	\$
Total Conventional AC Costs	\$

• CITY GAS AC PLAN

Base Charges (Therms) × (Rate)	\$
Lease Plus Payment	\$
Total City Gas AC Costs	\$
NET SAVINGS using GAS	\$

At left is the front cover of the brochure City Gas uses to promote its leased air-conditioning system. At right, is center.

fueled with L.P. gas. Eventually, this structure will get natural gas, now being distributed by City Gas through mains about a mile away.

Two 4½-ton units were installed at this church plant. The entire building contains the church area proper, plus rooms for church school classes and other space for parish business and social meetings. The installation was so engineered that the building is divided into two zones, and these can be air conditioned singly by a switching arrangement. Thus, for the church proper, the air conditioning need be on only when there is to be a worship service. It can be switched to the other areas for social activities during the week. City Gas also installed a central heating system, using the same duct work for both heating and air conditioning distribution.

Although this is the first church installation made by City Gas, the firm believes that churches offer a fine potential in this activity, chiefly because of the lease plan. Churches often have difficulty raising funds for capital improvements, so the pay-as-you-go principle of the lease is an appealing one.

Another means of capitalizing on L.P. gas, Mr. Mugele found, was in outlying areas where electric service may be subject to interruptions. This was the case with a restaurant which took out its electric system and replaced it with one fueled by propane. The owner had been troubled with disruptions to electric service and also, because of his outlying location, had trouble getting service from air conditioning firms. City Gas had promised prompt service on any trouble calls, and that was one of the reasons for his switch, Mr. Mugele said. As a dividend to this installation, the owner has ordered gas lights installed in his parking lot and in the restaurant as stand-bys in event of electrical failure.

About 60 per cent of the leases negotiated by City Gas for air conditioning systems have been in new construction work. In such selling, Mr. Mugele said, it is necessary to make the sales presentation early. It is best to approach the owner or the architect, and before the contract for the construction has been let, to be sure that a gas system is specified. If it is left

to the general contractor to select the air conditioning system, he probably will choose electric because of the lower initial cost, and is, of course, not interested in any lease arrangement, Mr. Mugele pointed out.

Some of the leases have been negotiated with persons dissatisfied with their previous systems, and some have been to provide air conditioning in established offices or stores or buildings not previously air conditioned.

The 10-year leases have a provision for repossessing the equipment in event a customer-firm fails in payments on the lease or the firm is sold or for some reason is forced to go out of business. A waiver also is obtained from the owner of the property, if it is other than the company leasing the air conditioning system, allowing City Gas to remove the equipment if the lease becomes void.

The remote installation of the chiller unit makes repossession relatively simple, and at the same time it gives a selling point because such an installation is quieter than one installed inside the building.

Under provisions of the lease used by City Gas, title to the air conditioning unit remains with the utility. The lease is renewable, but there is no option for the customer to purchase the equipment. This makes the tax write-off advantage of the lease clear-cut.

If any customer decided he wanted to purchase the equipment and void the lease, it would be agreeable to the company provided an acceptable price could be settled on, Mr. Mugele indicated. City Gas, he pointed out, is in the lease business only to sell more gas and not to profit from leases of equipment.

However, the lease program has not been designed as a "giveaway" project in order to build a gas load, he said. "We take a markup on the equipment and installation costs and we have projected our costs as well as we can to cover all our overhead and our investment costs. How we will come out at the end of 10 years is difficult to tell in one year, but we have every intention of making a reasonable profit from the lease program as well as building our gas load."

Carrying charges under the lease are figured at 8 per cent. The leases are held by the company (no subsidiary leasing firm enters into the picture) and become part of the company assets.

City Gas makes its own credit check of potential customers.

After figuring all costs and charges, the company developed a quick formula for estimating leases.

Cost of the equipment (to City Gas) is added to the estimate from the air conditioning contractor for installation of the equipment (exclusive of duct work). To this is added 17 per cent of the total of the two. Fifty per cent of that total is then added, and the sum is divided by 120 months to obtain the monthly lease payment figure.

For example:

Equipment cost (3-ton unit)	\$1300
Installation	500
Sub total	\$1800
Plus 17 per cent	306
Sub total	\$2106
Plus 50 per cent	1053
Total	\$3159
Monthly payment (1/120th), rounded off =	\$27.00

Duct work, which cannot be covered by the lease because it is not repossessable, must be paid for in cash (or by extended payments, if approved) at the time of the installation.

Using combinations of the 3- and 4½-ton Bryant units, City Gas is able to provide any needed output up to 10 tons.

City Gas hopes to develop bigger LPG loads, along with natural gas, as a result of the campaign for small commercial air conditioning. Natural gas, of course, offers the greatest potential because of the lower rates, but the company feels it is easily possible to merchandise LPG-fueled air conditioning above 10 tons in locations where natural gas is not yet available.

Although company leases are not practical on the larger installations, City Gas representatives point out to prospects that they can make lease arrangements, rather than an outright purchase, through one of the many national leasing companies. ■

Council aims for INDUSTRY STATURE

CONSUMER PROMOTIONAL IMPACT PLUS ACHIEVEMENT OF A NEW DIMENSION OF "INDUSTRY STATURE" are the main targets of the L.P. Gas Industry's 50th Anniversary program for 1962. The program was previewed at the National L.P. Gas Council Board of Directors' meeting at The Homestead, Hot Springs, Virginia, October 24.

Overall emphasis on stature-building will increase industry prestige in the eyes of our consumers and prospects and of the nation's business and professional communities, said Council president A. B. Ritzenthaler, The Tappan Co. But the overriding purpose of the entire program, he added, is to "sell more LP gas, more appliances and more equipment." He termed the program "grass roots practical."

Plans include separate programs for trade magazines; the national associations representing producers, manufacturers and marketers; state marketer associations; the producers, manufacturers and dealers as individual companies . . . plus presenting special business promotion benefits for Council members.

Council consumer advertising will feature a splash of multi-page color ads in sixteen farm magazines in April. The second big anniversary ad campaign in the fall of 1962 will spotlight home uses for the small town and suburban markets. E. A. Nash, Norge Sales Corp. is chairman of the Council Ad Committee.

Dealer sales aid materials will be keyed to the mid-century promotion benefits, from balloons to store traffic promotions, said DSA chairman Charles M. Francisco of Fuelane Corp.

GAMA is studying a plan to designate certain appliances as mid-century bargain specials, marked with an anniversary seal.

The Board of Directors of LPGA is considering a 50th Anniversary Commemorative Banquet at its birthday-centered May convention. Pioneers and leaders of the industry will be honored.

Natural Gas Processors Association is considering production of a 50th jubilee window display and a movie, and, possibly erection of a suitable marker at the site of the industry's first customer's home near Waterford, Pa.

Andrew Olson, The Protane Corp., said the grass roots program would focus attention on the state associations as the centers of the industry in the states concerned. Each association has received an easy-to-follow, step-by-step plan. It is highlighted by the individual governor's proclamation of "L.P. Gas 50th

Anniversary Week" to coincide with the state's 1962 association convention.

Suggestions for local dealer contests further the purpose of letting the whole state know that the association is the industry group due the bows and recognition for much of the state's L.P. gas progress.

For deeper penetration to the individual dealer, association members have been offered the opportunity to tie-in with Council ads for specific brand or company name recognition. New York and Pennsylvania association programs were reported already underway.

LPG, gas and petroleum industry publications will be serviced with appropriate mid-century story material.

To broaden industry participation, the Council is offering its "Fifty Years of Progress and Achievement" prestige brochure for purchase and distribution to schools, colleges, civic and governmental organizations and others that help shape the opinions and habits of consumers. As an anniversary "flag," the Council has designed for industrywide use a graphic anniversary emblem for advertising, letterhead, postage meter and other uses.

In addition to material prepared for the major big circulation consumer magazines, the Council is offering an illustrated feature story to 18,000 publications, a full newspaper page of editorial copy and illustrations to some 11,000 weeklies and small dailies. Newspaper mats of 12 Changing Scene cartoons, dramatizing how L.P. gas has improved living conditions since 1912, will be mailed to nearly 4000 selected L.P. gas market area newspapers.

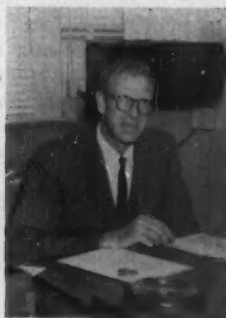
An editorial kit with current articles, background features, illustrative material and Council information brochures will be distributed to editors by the Council and state associations.

For radio and television coverage of jubilee highlights, network program directors and advertisers are being provided material for both news and feature pieces on L.P. gas at mid-century. A program for industry spokesmen to appear on local radio and television programs to tell the industry achievement story has been made a part of the Council's P.R. program.

Council material heralding the coming 50th Anniversary of the industry was distributed in the form of a lengthy article by the Associated Press to approximately 1500 newspapers. The first announcement to the consuming public received prominently displayed publication in the nation's leading papers. ■



Petrolane automates with the "Petroplate"



John F. Kennedy, controller at Petrolane Gas Service, Long Beach, Calif.

Plastic "credit card" is speeding receivables accounting for West Coast-based firm.

WILLIAM W. CLARK • Editor

INCREASED AUTOMATION AT PETROLANE GAS SERVICE, INC., OF LONG BEACH, California, is helping the accounting department to better serve the company's decentralized operating units. As Petrolane's new controller, John F. Kennedy explains it, "Our recent steps in automation have enabled us to further centralize accounting functions and at the same time furnish operating management with more timely information in greater variety, to assist in day-to-day decision making.

Two-and-one-half years ago, Butane-Propane News published an article* describing automation and centralization of accounting by Petrolane to that time. Since then, additional procedures have been automated. Chief among them are those relating to accounts receivable.

The key to the automation of receivables is the "Petroplate," a plastic card imprinted with the customer's name, address, and code number. When inserted with an invoice or cash receipt in a "Petroprinter" (Petrolane's name for an Addressograph data recorder), the Petroplate prints these identifying legends on the forms. Its primary purpose is to help ensure that the invoices and cash receipts are identified with the proper customers. Ultimately, through use of code scanning equipment, it will enable Petrolane to obtain punched cards automatically, direct from the invoice itself, without the inter-

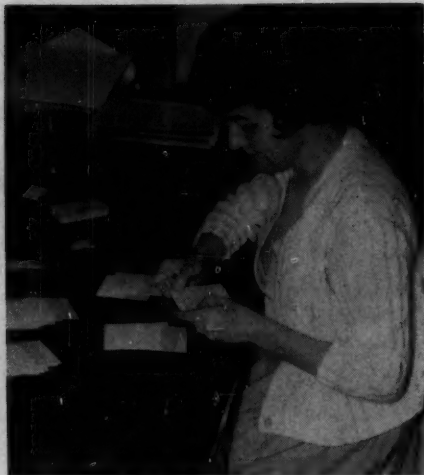
* See BPN, July 1959, pp. 39-48.



Here Johnnie Bone, obtaining input information from tank lease and sales forms, produces a perforated tape containing all the information to be included on the customer's Petroplate.



The perforated tape is fed through the Automatic Graphotype, which embosses customer identification and bar codes on the Petroplate. Jackie Mabry checks results as a new batch of cards issues from machine.



The new Petroplate is proof-read against the original document, and to it is affixed a card on which the district notes additional customer information. Here Sandy Wood affixes the card.

Petrolane automates

vention of manual key punching. Although similar in appearance to a typical credit card, it is not furnished to customers.

But we're getting ahead of our story. Here is how the Petroplate works today, and how it will work tomorrow:

First, remember that customer accounting is now on punched cards. This means that somewhere along the line, every transaction must be recorded on a card which can be fed into the company's machine accounting system.

This is accomplished by having the invoices and cash receipt forms made up in the shape and size of an IBM card. Each is a three-part snap-out form, part one being the customer copy, part two the district office copy, and part three the home office copy. The last named is actually a card. When it is received at the home office, the information it contains can be translated into punches in the card itself, and from it—and other cards—the customer's statement and various sales reports can be machine-prepared.

When this information was being handwritten, errors were frequent. A customer named "John F. Greene," for example, might have been written one time as "Johnny

Greene," "J. F. Green," or any of several possible combinations. His address one time might have been a street number, the next time a rural box number. Even if every entry were correct, machine operators at the home office might have misinterpreted them.

The Petroplate was devised to reduce such errors.

Two plates are produced for every regular customer. In most instances a Tank Lease and/or Sales Agreement are the sources of information recorded on the Petroplate. Whenever these forms are received at the home office, they signify that Petrolane has a new customer. An operator punches the identifying data into a tape, using a tape perforator. This perforated tape is then fed into an automatic graphotype, which produces Petroplates in assembly-line fashion.

The plates are then proof-read and a cardboard card is affixed. Each card has an adhesive on the front to which this Petroplate adheres. On the face of it are spaces where the district office fills in the serial number and capacity of the tank, at the customer's location, ownership of the tank, lease number if any, rate, tax code, route number, etc. Along the bottom is space to draw a simple map showing the location of the tank. On the reverse side is the delivery record, showing setup (scheduled) and

actual delivery dates, gallons delivered, and percentage-full upon delivery.

One Petroplate with route card attached is placed in the driver salesman's route file; the other is maintained in the district office. Whenever a delivery is made, the route man fills out an invoice, using a Petroplate and a Petroprinter to imprint the name, address, and number of the customer. The date is imprinted simultaneously by an auxiliary dating device built into the machine. Gallonage and price information is written in by hand. Eventually, a stationary plate bearing the truck code number will also be inserted in the driver salesman's Petroprinter. Petroprinter units are mounted in the cab of all delivery trucks.

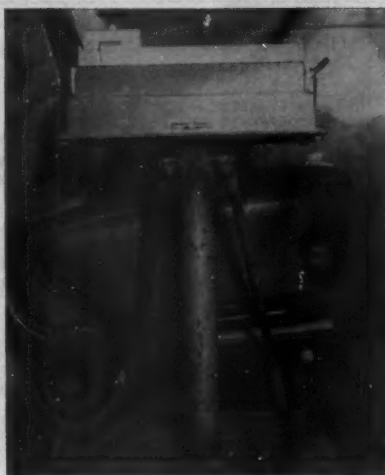
Each district office also has a Petroprinter. As a further means of reducing transcription errors, the district office Petroprinters have been equipped with keys for recording money figures on invoices and receipt cards.

All sales to regular customers must be registered on invoice cards for accounting purposes, even when they pay cash. Therefore, when a cash sale is made, the driver makes up two sets of paper, an invoice, and a cash receipt.

Each district plant, of course, also makes cash sales to persons who are not listed as "regular"



Louis A. Duarte, administrative accountant in charge, demonstrates how the driver salesman imprints an invoice using the Petroplate. Sales information is handwritten on the invoice.



Typical truck installations of Petroprinters. In trucks with jump seats, the device is mounted alongside the driver (center); in trucks with full seats, it is mounted at the dash (right).

customers. These would be primarily dock sales of cylinder gas. These sales are handled by means of a "Cash" Petroplate, thus permitting them to be processed in the same manner as credit transactions for purposes of obtaining sales statistics.

Sales invoices and cash receipt documents are forwarded daily to the home office for accounting. At the end of the billing period, invoice and receipt cards are matched with customers' name and address and master cards and balance forward cards. These cards are then run through an IBM 407 accounting machine, which prints the itemized statement. At this time, a new balance forward card is also produced.

Petrolane has had tank records on punched cards for several years; in fact, these were the first records to be handled by machine. Originally, however, they were used as fixed asset accountability records.

Cards punched from the same source documents as the tank records are now used for billing tank rental charges. When a tank is set, the customer pays the first year's rental in advance. Thereafter he is billed at an agreed interval—usually quarterly. So tank rental cards are kept segregated by due date; when a payment is due, they are merged with the regular invoices and receipt cards and printed on the statement for the month.




Hand-written data on the transaction cards are punched in by the crew of key punch operators shown here. Front row, Katherine Navikoff, Dianne O'Connor, and Zena Mae Collis. Back row, Eve Haughey, Sally Everts, Louane Spanne.



A customer master card is retained at the home office. Vivian Jacobazzi, at the rotary file, keeps the decks up to date. When it is time to produce statements, the decks are pulled and merged with transaction cards.

This is the way the Petroplate appears, with the card affixed. Note the embossed name, code number, and bar codes. All of these imprint onto the top of the invoice (or receipt, as the case may be); the bar codes will ultimately be read by the optical code scanner, which will then produce punches in the invoice (or receipt) card automatically.

CASH RECEIPT		Nº 1240	
DATE _____		CASH <input type="checkbox"/>	CHECK <input type="checkbox"/>
		MONEY ORDER <input type="checkbox"/>	
A PETROLANE COMPANY			
			
RECEIVED OF _____			
THE SUM OF _____		DOLLARS &	
<input type="checkbox"/> FOR PAYMENT ON ACCOUNT		<input type="checkbox"/> OTHER _____	
BY _____			
SAVE YOUR RECEIPTS			

The invoice and cash receipt are in the shape and size of a punch card; part three, which is sent to the home office, actually becomes a punched transaction card. Note that the invoice shown here has been imprinted by the Petroprinter.

The company has instituted a new system which has cut inventory of statement forms to a minimum. Each district must be identified on the statement, since the customer handles all his transactions with that district and will make his payments there. Formerly, the company had the district name and address preprinted on the statement. This meant that a separate stock of statement forms had to be maintained for every one of Petrolane's 160 districts.

Now, however, the district name and address is printed at the time the form goes through the burster. A small cylinder mounted at the feed end prints the local designation at the top and the bottom, in "Petrolane green." Thus a single stock of standard forms now suffices for all districts.

Another inventory-saving device adopted by Petrolane is the double-window envelope, which is used for mailing statements. Instead of hav-

ing a preprinted return address, they have a window in the upper left-hand corner (as well as one in the customary location for the addressee). Through it may be seen the district's name and address, as printed on the statement.

Statement copies have recently been reduced from five to four. The first part is mailed to the customer; part two is a "reminder" copy to be sent, by the district, to customers who are delinquent in their payments; part three is a home office copy; part four is the district's copy.

A fifth copy was formerly used by the district office for "aging" purposes. Now, however, Petrolane's home office can furnish an aged analysis or "hot sheet," completely machine-prepared, every month, so the district has no need for the file of aged statements.

A number of customers are billed on a "Gas Service Plan" (GSP), a form of budget billing. Where this is the case, the customer master card has the monthly payment figure punched in. All statements

bear a legend "GSP" in the upper left portion. When a statement is printed, the GSP amount will print after this legend, and in the space where the customer is directed to "Please pay this amount," the same amount will appear rather than the actual balance owed.

When the "hot sheet" is printed, each account on a GSP is so designated. This explains at a glance why this particular account did not pay in full in the month following the delivery of gas.


The next step in the automation of accounts receivable will be "code scanning." When the Graphotype machine embosses a Petroplate, it also produces a series of type-high bar codes representing the customer's account number. The Petroprinter prints the bar codes on all copies of invoices and receipts along

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

Here's how the statement appears after it has gone through the "burster." Note the district office identification at top and bottom. Note also the double-window envelope.

STATEMENT

PETROLANE GAS SERVICE
P.O. Box 828
720 Glendale Rd., Sparks, Nevada
Phone: EL 6-3221



We Sell the Finest Gas Appliances . . . Designed Specifically for use with LP-GAS
We Specialize . . . In the most Modern Methods of Flame Weld Control
LP-GAS Combination will SAVE you money.

S.F. **HARRY HAYDEN CAFE**
Rt. 1, Box 809
WILMINGTON, DELAWARE

18-273200

PLEASE DETACH AND RETURN THIS PORTION WITH YOUR REMITTANCE.

DATE	QUAN.	REV. NO.	CHARGES ADDED	PAYMENTS AND CREDITS DEDUCTED	BALANCE DUE
18					
1-25-60	000100	00075	18.71		181.59
1-25-60	000120	00041	24.67		
1-25-60	000120	00099	21.59		
1-25-60	000110	00449	19.79		
1-25-60		00471			111.15
PLEASE PAY THIS AMOUNT →					64.76

PETROLANE GAS SERVICE
P.O. Box 828
720 Glendale Rd., Sparks, Nevada
Phone: EL 6-3221

PAID BY CHECK NO. _____
DATED _____

TERMS: PAYABLE IN FULL ON PRESENTATION OF THIS STATEMENT.

with the customer's name, address, date, and readable account number.

When Petrolane acquires a scanner, the machine will "read" the bar code marks and automatically punch the customer's account number into all invoices and receipts cards. This will relieve the manual key punch operators of one operation and will further reduce the chance of error.

Petrolane has a number of metered accounts. Most meters, except those in fairly densely populated areas, are read by the customer.

These customers are sent an IBM-produced card each month, which contains a space for them to record their meter reading. The cards are mailed to Petrolane's accounting department for processing. Pricing and extending of usage formerly were manual operations but now, with the 602 calculator, all pricing and extending is done by machine.

The automation of accounts receivable work produces several very important by-products, in addition to the age analysis previously men-

tioned. One is the tank usage recap, a three-part report made up by districts.

In making this run, the accounting department pulls the customer name and address card and collates it with his sales invoices for the previous three months, sorted into sequence. The aggregate deck for a district will be machine-sorted into three groups, then a recap will be machine-prepared for each group.

The first report shows customers who have tanks, but to whom no deliveries have been made for three months. The second shows customers with no tanks, to whom no deliveries have been made for three months. (These customers would consist principally of plant cash sales). The third shows customers with tanks, to whom deliveries have been made in the period.

These reports can be highly useful for the marketing and purchasing departments and for the district manager, as well as for the accounting department. For one thing, they provide accountability for tanks. Tanks that have not been filled for three months are idle assets: when these show up on a report, the question arises, Should they be moved elsewhere? Is the customer no longer a customer? Is the district asking for new tanks when it has idle ones out in the territory?

On the third report, improper



The district office identification is printed by a cylindrical plate on the burster. Here James Miller puts on a new plate as he readies a run through the machine.



The 407 machines, here tended by James Miller and Sally Everts, prepare numerous summary reports from the accounting data.

Petrolane automates

sizing of tanks is immediately apparent. This report shows the tank size, the number of deliveries, and the gross amount of deliveries in three months. Suppose a customer with a 575-gal tank has received three deliveries in three months, aggregating 60 gals. Is it possible that at each delivery only 20 gal. was dropped? If so, some action at the local level should be taken.

Another useful report is the "branch monthly recap," which shows total gallonage sales for the

month against the total gallonage sales for the same month a year previous, dollar sales for the corresponding periods and average price-per-gallon for both.

These reports were already being produced at the time the previous article appeared. However, average prices had to be calculated manually and hand-written on the recap. Now the 602 computer produces this information automatically.

Other phases of accounting have also been speeded up through greater automation. One is the general ledger, which, when hand-posted, required 360 hours to yield a trial balance. This was later reduced to 80 man-hours by the use of summary reports, machine-prepared, which were posted on manually operated posting machines.

Today, in a matter of about 16 hours of machine time, the company can obtain a profit and loss statement, showing results for the month and the year to date, for every one of the 160 districts and for the consolidated operation as well.

Accounts payable have been handled by machine for several years. So have bank reconciliations. Now, Petrolane is automating payroll too. The 602 computer will figure, and punch, regular pay, overtime pay, and the various amounts withheld, and the checks will be written by the 407 accounting machine.

What does all this cost? In any procedural changeover, you must look at the before-and-after picture. In January 1959, partially automated, the accounting department employed 54 people. Today, more nearly completely automated, it employs 63, an increase of nine. Some are higher paid, because of the greater skills involved. And the machine rental costs have gone up.

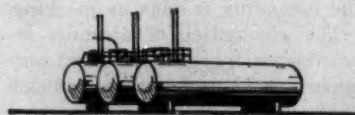
However, in the year ending September 1959 (and by that time the accounting staff had already been increased to 58) Petrolane's revenue was \$15 million. In the year ending in September 1961, revenues are estimated to have been \$20 million—an increase of 33⅓ per cent. The increase in individual transactions has been even greater because an increasingly larger share of Petrolane's total revenue is from retail rather than wholesale operations.

Thus although aggregate costs have increased, unit processing costs are substantially lower. Further, when the optical code scanner is received, substantial additional savings are expected. According to Louis A. Duarte, administrative accountant, "The bar-coded numeric information on the invoices and receipts will be scanned and automatically converted to punched holes at the rate of 180 cards per minute. When you project Petrolane's load growth for the next five years, you find an expected increase of 100 per cent in activity. On that basis, the scanner will save us \$42,262 during that period."

It is estimated that when the scanner is in operation the cost of processing input data (invoices and cash receipts) will be 29 cents per thousand. Before the automation program began costs were \$4.05 per thousand.

Divorced from straight dollars-and-cents comparisons, the value of automated accounting to the company is incalculable. Of great importance is the array of reports that can be produced quickly and accurately. Better control of marketing practices in the field alone can reap untold savings. ■

Miller, supervisor, checks through the library of summary reports prepared monthly by the department.





Owner Bill Hollingsworth gets ready to call one of his driver-salesmen to send him to one of the mobile home parks.

His clientele— People on the move

WILLIAM T. HARPER • Eastern Editor

THE PEOPLE OF THE UNITED STATES ARE AND ALWAYS HAVE BEEN A NOMADIC LOT. For 100 years during the 19th Century, Americans were moving west and south and north until they figuratively covered a total of 3,022,387 sq. miles like the proverbial blanket. From Lubec, Me., to Cape Alava, Wash.; from Penasee, Minn., to Key West, Fla., our men, women and children roamed in search of their Manifest Destiny.

And still they roam. The covered wagons, the prairie schooners, the horse and buggy are no longer. But, the gypsy-like spirit remains. It is evident everywhere, every day. Have you taken a good look at the highway traffic roaring along on almost any weekend of the year? If you are driving in it, it is perhaps like being too close to the forest to see the trees. But, for a moment only (for that's all you can safely allow), take your eyes off the car in front of you and see how you're surrounded by other automobiles, trucks, buses, mobile homes and, yes, even bicycles and an occasional horse-drawn vehicle.

William L. Hollingsworth took just such a look about 10 years ago. He was duly impressed, especially with the number of mobile homes he saw being pulled across the highways south of Washington, D. C. And, as he drove along those highways, he could not help but notice the increasing number of mobile home parks that were springing up faster than the rise in the National Debt.

Taking a cue from our adventurous forefathers, Hollingsworth decided that there was a pioneering job to be done in these parks. He was right. Around them, he has built himself a profitable L. P. gas business.

Today he is the owner of the Dixie Gas Co., which has its headquarters in Newport News, Va., with a couple of branches to the north. It is nothing



The Dixie Gas Co. headquarters serves mobile home parks within a radius of about 50 miles from Newport News, Va. The main office, workshop and service center is located behind owner William L. Hollingsworth's home shown here.

ing fancy, just an office and work shop behind his home and 30,000 gals. of LPG storage located at his plant some four miles up the highway and only 12 miles from the American Oil Co. refinery in Yorktown, Va. Yet, from such modest surroundings, Dixie Gas Co. is selling close to one million gals. of propane per year—of which about half is going into mobile home parks.

When Hollingsworth opened the Dixie Gas Co., in 1955, he had one 600-gal. truck that served about 50 parks between Norfolk, Va., and Washington, D. C. Total volume for those parks that year was roughly 40,000 gals. Now, Dixie Gas has seven trucks (ranging in size from 600 to 2500 gals.) dispensing over 400,000 gals. of LPG annually to several hundred parks. Hollingsworth's Richmond, Va., branch alone now serves more parks than did the entire operation in its first year.

The parks Dixie serves range in size from "three or four homes to 300 to-400 units," says Hollings-



A Dixie Gas Co. 100-lb cylinder is pig-tailed into the system used by the owner of the mobile home shown here.

People on the move

worth. "We serve a half-dozen parks that have over 100 homes in each." All of Dixie's mobile home customers use LPG for at least cooking while some 10 per cent of them use the fuel for hot water heating and one per cent of them use it for space heating.

The mobile home customers are served individually and are treated much the same as any other domestic account. Actually, there are two types of customers. One is the type who wants his cylinders filled as needed whether or not he is at home when the delivery truck comes around. The other wants the cylinders filled only when the customer is at home. Special markers have been installed on the homes to indicate to the drivers which is which.

Most all mobile homes come factory-equipped with one or two 20-lb cylinders. Once an owner becomes a Dixie customer, however, Hollingsworth tries to get him to take one or two 100-lb cylinders, which can be quickly pig-tailed into the system. As an inducement, the customer gets a cut in fuel cost.

The gas is metered from the trucks and no customer meters have been installed. Dixie has a few customers using 420-gal. tanks and they buy their gas by the gallon. These customers are considered more permanent and the tanks are rented to them for one dollar per month. Hollingsworth estimates his average customer stays with

him for about two to three years. Some have lasted for as long as he has been in the area; others do not last a week. The latter cases are usually military personnel en route to a new station or construction people unable to find work in that area. They quickly move on.

Hollingsworth estimates that his company loses about three per cent of its annual receipts to "credit beaters." He feels the biggest such risks are those people in rented homes or travel trailers and he has just about given up on taking them as customers. However, he also feels that the three per cent loss can hardly be reduced due to the transient nature of those customers. Such losses may even grow higher as Dixie's customers increase but Hollingsworth feels it is worth the risk.

The acquisition of mobile home customers in Dixie's area is highly competitive. This is one of the reasons Hollingsworth has his trucks out making weekly deliveries. A more accurate routing system could easily be set up, he feels, and this would eliminate the need for weekly deliveries. "But," he says, "if we didn't have our men out there at least once a week, other dealers would be in there picking off our customers right and left. Not only that, but these people move in and out pretty quickly. With our trucks continually out there, we have a better chance of getting to the new customers first."

Each of Dixie's trucks has a helper and everyone in the company is a salesman. All of the driver-salesmen are on straight commission and this, says Hollingsworth, "keeps them digging." Dixie has very little bookkeeping and mailing for due bills as each driver is also responsible for collections. Two delivery trucks and one service truck are equipped with Motorola mobile radio to help keep up with customer requests.

One of the primary reasons for Dixie's success in selling the mobile home field has been pioneering work done by Hollingsworth in trying to upgrade the safety factors of the installations he services. The condition of some of the installations he has come across has been appalling. Those faults most com-

monly found include: Gas bottles just sitting on the front of the mobile homes without any rack whatsoever to hold them; the use of aluminum tubing, which in the seashore resort areas the company covers are prone to corrode due to the excessive salt air (and which is specifically prohibited in Pamphlet 58); tubing being run through holes in the home body without any kind of protective insulation around the holes; leaking radiators; and, in many cases, hose-hanging tubing. By showing customers how such faulty installations result in gas losses, Hollingsworth is able to convince them of the value of rectifying the situation.

In addition to correcting those faults, Dixie Gas also offers normal servicing of appliances and equipment. The biggest problems encountered there include repairs to oven controls, thermocouples, and conversion jobs on equipment set for natural gas. Service is available on a 24-hour basis but only emergencies are taken care of in the odd hours. There is no charge for minor repairs although Dixie does charge for such operations as setting a range or anything that needs a specially qualified man.

Never missing a bet, Hollingsworth also makes an effort to sell L.P. gas to the dealers who sell mobile homes. It is customary in the business for the home dealer to provide the new customer with two cylinders of gas. With some 6500 retail outlets in the country, Dixie's share makes this well worthwhile.

The Mobile Home Manufacturers Association predicts another half-million mobile homes will be manufactured over the next five years. Just about every one of them will be using L.P. gas for cooking, at least. Surely, the number of those using LPG for heating systems would rise if bottled gas dealers would only get out and sell the advantages of their fuel. Add to that potential the load that gas-fired water heating would mean if it were aggressively promoted. It becomes quite impressive.

The gas load from mobile homes is there. It is up to the L. P. gas dealers to get it before it moves on. ■

Facts and figures on mobile homes

The Mobile Home —Its rapid growth

What Hollingsworth observed a few years ago along the Del-Mar-Va (Delaware, Maryland, Virginia) peninsula, has been true throughout the country. The mobile homelife has been expanding at breakneck speed. According to the Mobile Homes Manufacturers Association, there were 63,100 mobile homes manufactured and shipped to dealers throughout the country in 1950. By the time 1960 rolled around, that figure had risen well over 100 per cent to 144,000 for the year.

(The latter total includes both mobile homes and travel trailers. The difference between the two is that the former is considered to be a permanent or semi-permanent type of housing while the latter is used mainly for va-

cation or weekend use. However, for the purposes of this article, both may be considered synonymous, except where noted.)

The mobile home manufacturing industry got its real start in 1930 with the construction and sale of 1300 units. The biggest construction year since then was 1959, when 162,500 units were manufactured. The MHMA estimates that for every 100 new single family homes constructed in 1960, approximately 11 new mobile homes were manufactured and sold. As of August 15, 1961, it is estimated that there are 1.5 million mobile homes and travel trailers in use. And, there are approximately 3,625,000 people living in mobile homes and 725,000 persons utilizing travel trailers.

The Mobile Home —Its people and parks

The residents of mobile homes include 37 per cent, skilled workers; 20 per cent, military personnel; 18 per cent professional people; 10 per cent, retired people; 3 per cent, students; and 12 per cent, others—such as businessmen, laborers, and the semi-skilled.

To accommodate these homes, there are more than 16,000 parks in the United States, each of which may contain anywhere from 20 to 1200 spaces. MHMA estimates that the average park has 46 spaces for which the nor-

mal monthly rental for an average lot is \$15 to \$60, with luxury sites running as high at \$450. There are also an estimated 1700 privately owned American parks that accept travel trailers as well as 815 national and state parks.

Those states having the largest number of private travel trailer parks are California, Florida, Texas, Arizona, Minnesota, Washington, Ohio, Oregon, Michigan, Colorado, and Indiana. Florida, Arizona, and California have the largest number of mobile home parks.

The Mobile Home —Its price and size

The current average price of a mobile home is \$5500 (as compared with travel trailers which average \$1800), with most of them in the \$3000 to \$9000 range.

Mobile homes generally range in size from 25 to 60 ft long and the majority of them are 10 ft

wide (travel trailers are 24 ft or less in length and 8 ft wide). Construction of the modern homes includes a welded steel frame and exterior walls of aluminum or sheet steel. They are insulated with either spun glass and/or aluminum foil with adequate vapor barriers.

The Mobile Home —Its heating system

MHMA reports 76 per cent of the mobile homes manufactured in 1959 used fuel oil for heating systems while only 10.9 per cent used L.P. gas. Electricity gar-

nered only 2.1 per cent of that load with the rest going to combination L.P. and natural gas and natural gas alone. Ninety-eight per cent were ducted.



Vehicle maintenance plan cuts operating costs

H. H. DONALDSON

SURVEYS HAVE SHOWN THAT MORE THAN HALF THE OPERATORS OF DELIVERY FLEETS do not keep adequate records of vehicle maintenance and do not know what their vehicle operating costs really are. Significant savings can be made when a preventive maintenance program is installed to control these costs.

It has been proven time and again that scheduled preventive maintenance and adequate records are profitable investments. The dividends are measured in terms of reduced fuel and oil consumption and fewer delayed deliveries, repairs, and road failures. The dividends are kept flowing by frequent inspections and preventive repairs. Serious, costly trouble is never permitted to develop.

Although preventive maintenance programs vary

with the types of vehicles and the services they perform, they all have the same goal: longer vehicle dependability at lowest per-mile cost.

Establishing a satisfactory program is a fairly simple procedure. In fact, when the proper records are kept, a pattern of good maintenance practices will quickly establish itself. Generally speaking, the four basic considerations are:

1. Selection of the proper fuels and lubricants.
2. Frequency of lubrication.
3. Frequency of adjustment or tune-up.
4. Inspection procedures.

A fifth point in any good program—one that ties the other four together—is the keeping of proper records. These need not be elaborate or costly in terms of manpower, but they are essential to maintaining a regular schedule and in providing a running cost summary for every vehicle.

Fuel and lubricant selection

The careful selection of fuels and lubricants is vital to any automotive maintenance program. Without the use of fuels and lubricants appropriate to the fleet's operating conditions, a program cannot achieve its goal of economy.

For commercial engines, two grades of gasoline are generally available. (The newer third or super-premium grade is for use in high compression passenger car engines and has little application in the commercial engine field.) The choice of regular or premium for fleet gasoline is dictated entirely by the octane requirements of the engines involved. Little benefit can be obtained by using premium gasoline in an engine that will operate knock-free on regular gasoline. On the other hand, the use of a gasoline of a lower grade than the vehicle requires can result in costly damage.

Two grades of diesel fuel are also available. The choice of kerosene, or No. 1 diesel fuel, and No. 2 diesel fuel is dictated by the service conditions of the vehicle. For lightly loaded equipment in stop-and-start service the more volatile No. 1 grade should be used. Under these conditions there may not be sufficient heat available in combustion chambers to completely vaporize the heavier portions of No. 2 diesel fuel. This results in smoking exhausts and the rapid accumulation of deposits on valves, ports and injectors, with consequent high fuel consumption.

Increasing use is being made of L.P. gas as a fuel for spark-ignition engines, and L.P. gas marketers will, of course, use LPG in their own fleets whenever it is feasible. Its use is particularly advantageous in stop-and-go service because it provides more uniform fuel-air mixtures in the cylinders, with consequent higher efficiency, together with a reduction in engine deposits and wear. It eliminates crankcase oil dilution and permits longer drain intervals. Its higher octane rating permits the use of higher compression ratios with better thermal efficiency.

The functions of a lubricating oil in an internal combustion engine are to lubricate, clean, cool, seal, and protect. While an oil may have properties which permit it to perform these functions under one set of operating conditions, the same oil may show deficiencies if it is used under a different set of operating conditions—even in the same engine.

Because of the wide variety of oil types which were required to provide optimum service from all types of engines in all types of service, it became desirable a few years ago to develop a classification system which would be nationally recognized and by which the correct oil for a given operation could be identified regardless of brand name.

The result was the American Petroleum Institute Engine Service Classification System. Six broad classes of service needs were defined—three for spark-ignition engines and three for diesel—dependent on engine design requirements and vehicle operating conditions. Each service classification is identified with descriptive letters. The letters MS, for example, refer to an oil's suitability for spark-ignition engines operated under unfavorable or

A BPN Exclusive

severe conditions. Other spark-ignition engine service classifications are MM and ML for moderate and light service, respectively. Diesel engine service classifications are identified as DS (for most severe), DM and DG for severe and moderate, respectively.

An important fact of engine lubrication often overlooked is that some types of service that are thought of as being very light, from the standpoint of engine power requirements, are actually very severe from the lubrication standpoint in that they promote both rapid wear and objectionable deposits.

This applies especially to start-and-stop and short-trip service of passenger cars and light trucks in delivery fleets, and to light-load, cold operation of any engine.

In light-load intermittent operation, engine temperatures seldom reach a high enough range to prevent condensation of acidic products of combustion on the cylinder walls. These acids are highly corrosive and their presence results in rapid wear of cylinders and rings.

Raw fuel and water also condense on the cylinder walls and eventually dilute the crankcase oil. The MS type of oil overcomes these contaminants by neutralizing the acids and by keeping solids and water finely dispersed so that they do not agglomerate and settle out in the form of varnish and sludge.

In LPG engines, the problem of crankcase oil dilution is non-existent because of the gaseous nature of the fuel. However, the products of combustion of L.P. gas (principally carbon dioxide and water) are acidic in nature and under low engine temperatures will condense on cylinder walls and cause the same type of corrosive wear of cylinders and rings as is encountered in gasoline engines under similar conditions. For this reason, MS oils are also recommended for the lubrication of L.P. gas engines operated in stop-and-go, light-duty service.*

While their principal benefit derives from this minimizing of sludge and varnish in the light-load, intermittent type of operation, the newer MS oils have proved equally effective in high-temperature, over-the-road service. For L.P. gas engines in this type of service, the use of MS oils will usually permit drain periods as compared to the use of the same oil in other types of engines. This again is due to the absence of crankcase dilution and subsequent oxidation of the diluent to form varnish

* It has frequently been stated that, because oil in LPG-fueled engines does not become diluted as it would in gasoline engines, one number lighter grade should be used. However, this is true only in the case of naphthenic types of oils. Such oils are more volatile than paraffinic oils. Thickening of oil in service is due both to lack of crankcase dilution and evaporation of the light ends. However, the MS types of oil, as recommended here, are paraffinic oils. If significant thickening of these types of oils is experienced, it will be due (in all probability) to oxidation of the oil. In this case, an attempt to control viscosity by adding a lighter grade of oil might be quite disastrous to the engine. Of course, naphthenic oils are subject to oxidation the same as paraffinic oils, but evaporation of the light ends of naphthenic oils results in their thickening up in an L.P. gas engine long before appreciable oxidation occurs. Paraffinic oils, due to their less volatile nature, do not exhibit this tendency. Consequently, any thickening of such oils would more likely be an indication of oxidation.

The frequency at which adjustments should be made is dictated by the type of service in which the vehicle is engaged. Operations involving frequent stops, starts, and changes in engine speed lead to relatively rapid changes in the desired settings. This is in contrast to highway operation where many miles are traveled at relatively constant engine speed.

Inspection is the heart of a preventive maintenance program. It offers dividends far out of proportion to the time invested.

Similarly, the time required to inspect wheels for looseness while the vehicle is on a lift for chassis lubrication is insignificant. If a loose wheel is discovered, a wheel bearing has been saved or a potential accident averted.

A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

Experience has shown that it is seldom, if ever, convenient to take a vehicle out of service, but management evaluation of long term operating cost reductions developed from scheduled preventive maintenance will show that these outweigh the costs of brief, periodic withdrawals from service.

The careful driver will inspect items affecting his personal safety before he starts a trip. He should also be encouraged to check crankcase and radiator levels, battery, belts and fuel lines, as further insurance against road breakdown. He should be provided with the means to report any unusual conditions he has noted during a trip. This can alert the mechanics and permit them to correct a minor difficulty before actual trouble or failure results.

The unifying element in a successful preventive maintenance program is the record of maintenance performed on each vehicle. Records are essential if the value of preventive maintenance is to be

[illegible]

Inside this "vehicle maintenance record" are the battery record, showing make of battery, date of installation and replacement; gas-line and oil record, showing miles traveled per gallon; repair record, giving nature of repairs and cost.

Preventive maintenance cannot be made successful without adequate records. Shown here are component forms in a record kit typical of those available from automotive equipment manufacturers and oil producers.

Vehicle maintenance plan

spelled out in terms of longer vehicle availability at lowest per-mile cost.

Maintenance record forms can be obtained from most automotive equipment manufacturers and many major oil companies. The marketing affiliate of Gulf, for example, provides free of charge a set of simple Trouble-Free Maintenance records which include comprehensive lubrication charts for the specific vehicle makes and models in a given fleet.


The essential single record which all others are designed to develop is the one which eventually will show the fleet manager the exact cost per mile of each vehicle.

He arrives at the figure by adding together:

1. Original cost of equipment, less credit for resale or trade-in price.
2. Cost of fuel and lubricants, plus labor.
3. Cost of replacement parts plus labor (including costs incidental to failure of equipment on the road).

and dividing this sum by the total number of miles traveled.

With regularly scheduled preventive maintenance applied to his fleet, he may rest assured that the resulting figure will reflect faithfully the lowest cost per mile and best possible record of vehicle availability. ■



**TROUBLE-FREE
MAINTENANCE
PLAN**

WORK ORDER-REPAIR RECORD FOR LIFT TRUCKS

DATE: _____

ADDRESS: _____

PHONE: _____

MAKE, MODEL, YEAR: _____

THIS FORM IS TO BE USED TO REPORT ALL MAINTENANCE WORK DONE ON LIFT TRUCKS. IT IS TO BE FILLED OUT BY THE MAINTENANCE PERSONNEL WHO PERFORM THE WORK. IT IS TO BE SUBMITTED TO THE CUSTOMER'S MAINTENANCE DEPARTMENT AT THE END OF EACH WORKING DAY. IT IS TO BE KEPT ON FILE IN THE MAINTENANCE DEPARTMENT FOR A MINIMUM OF 12 MONTHS.

1. "O" SERVICE

1. Oil Change

2. Filter Change

3. Spark Plug Change

4. Water Pump Change

5. Timing Belt Change

6. Timing Chain Change

2. "O" SERVICE

1. Brake Pad Change

2. Brake Disc Change

3. Brake Line Change

4. Brake Master Cylinder Change

5. Brake Slave Cylinder Change

6. Brake Caliper Change

7. Brake Drum Change

8. Brake Shoe Change

9. Brake Wheel Change

10. Brake Hub Change

11. Brake Line Change

12. Brake Master Cylinder Change

13. Brake Slave Cylinder Change

14. Brake Caliper Change

15. Brake Drum Change

16. Brake Shoe Change

17. Brake Wheel Change

18. Brake Hub Change

19. Brake Line Change

20. Brake Master Cylinder Change

21. Brake Slave Cylinder Change

22. Brake Caliper Change

23. Brake Drum Change

24. Brake Shoe Change

25. Brake Wheel Change

26. Brake Hub Change

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37. Brake Slave Cylinder Change

38. Brake Caliper Change

39. Brake Drum Change

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41. Brake Wheel Change

42. Brake Hub Change

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49. Brake Wheel Change

50. Brake Hub Change

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68. Brake Master Cylinder Change

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75. Brake Line Change

76. Brake Master Cylinder Change

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78. Brake Caliper Change

79. Brake Drum Change

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81. Brake Wheel Change

82. Brake Hub Change

83. Brake Line Change

84. Brake Master Cylinder Change

85. Brake Slave Cylinder Change

86. Brake Caliper Change

87. Brake Drum Change

88. Brake Shoe Change

89. Brake Wheel Change

90. Brake Hub Change

91. Brake Line Change

92. Brake Master Cylinder Change

93. Brake Slave Cylinder Change

94. Brake Caliper Change

95. Brake Drum Change

96. Brake Shoe Change

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28



Over-all view of experimental frozen earth storage site. The black, insulated line from the foreground to the top of the pit is the flow line from the above-ground storage tank; the aluminum line to the left is the vent line to the regulating valve and stack; the structure beyond the pit is the "Carter Box" enclosing the submerged pump. The small roofed structure beyond the pit houses the compressor for activating the vapor lift system.

How liquefied natural gas is stored in "frozen earth"

ELTON STERRETT

A new and unusual method of storing natural gas — in "frozen earth" was demonstrated in October at Lake Charles, La. While the problems of storing natural gas are much more critical than are those encountered with L.P. gas, the new method is also applicable to the latter product. It would appear that the only question regarding its feasibility for LPG storage is one of economics: While it may well be competitive in cost with alternate methods of storing natural gas, is it also competitive with alternate methods of storing LPG?

The companies involved do not have a ready answer to that question; it will have to await further

study. It is possible, however, that such a study will be taken within the next year.

NATURAL GAS BECOMES A LIQUID AT A TEMPERATURE OF -268°F . At atmospheric pressure it occupies a volume only 1/600 that of the gas at 60°F . Were it not for the problem of maintaining a low temperature necessary to keep the liquefied natural gas (LNG) in that state, storage of the liquid would offer many advantages over any type of storage as a gas.

A new approach to LNG storage has been worked out and put into demonstrable operation by Conch Methane Services, Ltd. of London, England, and Constock Pritchard

Corp. of Kansas City. Their method involves storing LNG in an earthen pit, sealed by an insulated aluminum cover, and retained in the pit only by the surrounding frozen earth.

A pilot pit has been excavated on the Haymark Loading Terminal of Shell Oil Corp. a few miles down the Calcasieu river from Lake Charles, La. The site was first frozen by driving a circle of refrigerating pipes into the earth around the proposed pit. Frozen material was excavated with air-powered chisels of the type used for breaking pavement. The experimental pit, 20-ft in diameter and

(Continued on page 56)



N. H. STARK . . . his new "Research Digest Reports" are objective, unbiased.

A BPN Staff Report

Here's proof of L.P. gas' superiority to electricity

GEORGE WALKER

UNBIASED—AND NON-UNDERWRITTEN—RESEARCH which proves the advantages of L. P. gas over electricity is now available in a new series of Research Digest Reports from the laboratories of Norman H. Stark of Grafton, Wis.

These reports represent a new departure for the Stark laboratories. They are the product of Stark's efforts to divorce scientific research from sales promotion, thereby strengthening the credibility of the research itself. The net result should be a heightening of the effectiveness of the sales promotion which is based upon them.

What Stark has done, in effect, is to provide the raw materials for the anti-electricity weapons. The finished weapons themselves will be forged by the individual dealers who subscribe to services.

The Digest Reports are a product of a continuing research program started several years ago in Stark's laboratories. Included were studies of gas vs. electric clothes dryers, ranges, and water heaters. Having completed the laboratory-type research, Stark earlier this year equipped his own home as a living "test house" where he could continue the studies under "typical" living conditions. The appliances under test are in use daily by the Stark family. How or when they are used is not predetermined as would be the case in a labora-

tory. But their use and performance are recorded, and the data derived therefrom are analyzed just as were the laboratory data.

In order that we might better understand the purposes and methods of the Stark reports, let's briefly review the history of this activity:

Norman H. Stark is a research engineer and inventor. One of his most noteworthy accomplishments was the development of a packaged bar of solid fuel, used by World War II soldiers to heat their food in the field. "The government had found that the men, tense and frightened from the fighting, became ill when they tried to eat cold rations," recalls Stark. The compact bars of fuel were a handy solution to this problem; millions were manufactured for the armed forces.

Subsequently, Stark did a variety of research and development jobs in several fields. Then in 1957, he was commissioned by a manufacturer to do developmental work on combination washer-dryers. "This was somewhat far afield from what I had been doing," says Stark. "Yet washing and drying are actually chemical processes, and my work had been in processing of one sort or another."

Inevitably, gas and electricity came in for comparisons during the study of the drying cycle. Stark's work yielded scientific substantiation of what gas had already right-

fully claimed: that it is faster and cheaper for this use than is electricity.

His report of these facts came to the attention of LPGA, and in 1960, Vice President Rudy Mahnke invited him to tell the convention about his findings. Stark's presentation was an immediate hit, and marketers began clamoring for the information in useable form for promotion purposes.

Finding himself in the business of comparative testing more by accident than by design, Stark began giving it serious concentration. He produced a mailing piece for dealers based on the outcome of his clothes dryer studies, then turned his attention to other phases of the gas vs. electricity situation. His avowed goal was—and is—to arrive at the truth, come what may. If his work establishes the superiority of electricity for any application, he will make this fact known. To date, however, his findings have favored gas, a fact that should reassure L. P. dealers who knew it all the time, but lacked the unbiased proof.

He conducted water heating tests. He converted his own home at nearby Mequon into a practical laboratory. He began—and has now completed—tests of electric vs. gas cooking—both as to cleanliness and kitchen heating properties. For the future he has programmed a full-scale test curriculum covering space heating, pool heating, gas lighting,

IF ...we could prove to your satisfaction
that you could make more money
as an independent Skelgas LP-Gas dealer,
....would you be interested?



FILL OUT THIS COUPON AND MAIL TODAY

Mr. Chalmer Jaynes
Skelgas Marketing, Skelly Oil Company
P. O. Box 436, Kansas City 41, Missouri

Dear Mr. Jaynes:

Without obligation, and in complete confidence, I would be interested in discussing the profit possibilities of an independent Skelgas Franchise with one of your managers. I am particularly interested in:

- ☐ How to gain operating cash from accounts receivable.
- ☐ How to double my income without additional capital investment.
- ☐ How to turn my bulk plant investment into an extra 150,000 gallons of gas business per year.
- ☐ How to make a \$2,000 investment produce like \$10,000.

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COMPANY _____

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Dependable Products

NEW! Just a few Honeywell truck can handle up to



Now just a few controls instead of hundreds. Honeywell engineers selected and re-engineered 170 basic controls that do the job of 18,000 or more! Just a handful of TRADELINE Controls on your truck normally take care of up to 93% of all your service needs.

TRADELINE* controls on your 93% of your service needs

Eliminates extra trips for right controls... means more money for you... better service to your customers

Now Honeywell introduces a revolutionary new approach to eliminate the confusion in controls stocking. It's TRADELINE—the new way to streamline your control stock.

Honeywell engineers selected and re-engineered 170 controls that will do the job of 18,000. And do the job right! Since TRADELINE Controls will handle up to 93% of all common control installations, you just carry a few controls instead of hundreds.

With TRADELINE Controls you can now afford to carry the right controls on your truck and eliminate extra trips and wholesaler pickups for controls.

And, you can always depend on your wholesaler to have the right control if he stocks TRADELINE.

The savings in time alone, by eliminating unnecessary extra trips for the right control, will help put you in business with your initial stock of TRADELINE Controls. From there on, you're making money, plus giving your customers faster, more efficient service.

PROVED IN TWO-YEAR TEST!

The TRADELINE idea of a few controls replacing hundreds has been tested for two years in the Southwest with hundreds of dealers. It's a proved way to increase your business.



FIND THE RIGHT CONTROL IN POCKET GUIDE

A new, pocket-sized cross reference guide tells you instantly which basic TRADELINE Control is needed. It's available from your wholesaler.

Call your wholesaler today and get him to assemble the proper TRADELINE Controls for your needs.

* TRADEMARK

**THE NEW WAY TO
STREAMLINE WHOLESALERS'
AND DEALERS' CONTROL STOCK**

NEW, TOUGH STYROFOAM PACKAGE!



New idea in packaging. The Honeywell Round, V80 and V81 gas valves, pilotburners, thermocouples and the Y400 Powerpile package are among the first TRADELINE Controls to be nestled in handsome Styrofoam containers. Handy, neat, controls can't be damaged on truck.

H
HONEYWELL

HONEYWELL
TRADELINE
CONTROLS

HONEYWELL INTERNATIONAL—Sales and service offices in all principal cities of the free world. Manufacturing in the United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

L.P. gas' superiority

incineration, and farm uses. The testing will be direct comparisons in all cases.

The promotion pieces based upon test reports have had excellent response to date, but Stark has been troubled by having to play the dual role of unbiased researcher and promotion man. The two are hardly compatible. It was for this reason that the Reports were conceived.

Says Stark: "Whereas the com-

plete report on cooking, for example, would cover as many as six comparative factors, the digest reports will cover only one. . . . In the coming 12 months (beginning with No. 1, which appeared Oct. 1), one of the following subjects will be covered each month: surface cooking, baking, broiling, water heating, incineration, refrigeration, central heating, clothes drying, combination washing and drying, central air conditioning, space heating, and space air conditioning.

"During the first year, the points that will be covered will be comparative operating costs. During the second and subsequent years, other comparative factors will be studied and reported on."

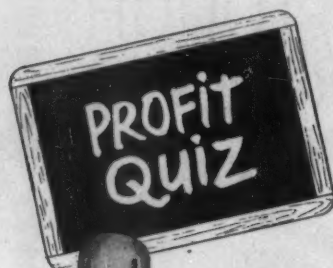
How can dealers use these new Research Digest Reports? "Well," says Stark, "while they are being written primarily for information to the L. P. gas dealer about his product, they would conceivably have value as a tool in sales promotion and advertising, as well as employee training."

The reports themselves, printed on heavy opaque paper, bordered in gold paper, can be used for selected mailings. The heavy paper is used so that there is no show through the reports, and the reverse side can be used with a sales message. Some dealers already have indicated they will send reprints of them to home economics teachers, 4-H clubs, builders, architects, and prospects who have taken out building permits.

For less selective mailings, dealers might want to prepare their own brochures and mailing pieces, tailored to their own competitive situations. While Stark will not permit duplication of the material (which is copyrighted), conclusions drawn can be publicized freely by subscribers.

Whether or not they attempt to reach the general public through mailings, dealers will find that the reports give them highly useful sales kit material with which they can face specific competitive problems. As Stark says, "One of the biggest advantages of this report service is that it builds for the dealer a complete and valuable library of facts about both his product and competitive fuels. Because all testing is done with late-model equipment, the dealer's file will always be kept current."

With this library at hand, he will not only have the proofs of those claims he uses in positive selling—e.g., LPG is faster and cheaper to use—but he will also have proofs to substantiate his defenses against the charges that LPG ranges are dirty and heat up the kitchen. The reports clearly show that these charges, repeatedly implied in electric industry advertising—are completely false.



DO YOU REALLY HAVE THE BEST CYLINDER BUY?

Are your cylinders:

- (1) Girth welded for greater safety and security, smarter appearance, longer service?
- (2) Galvanized on the footring and part of the bottom cup for maximum resistance to corrosion?
- (3) Equipped with curled handholds for easier handling, greater customer satisfaction?
- (4) Completely welded at the footring to prevent moisture seepage, retard rust and corrosion?
- (5) Made of the finest low-alloy, high strength steel for tough service?
- (6) Lighter in weight for easier handling, simplified filling, less costly shipping?
- (7) "Normalized" to remove harmful stresses rather than heat treated as done by most manufacturers?
- (8) Double painted for longer life, reduced maintenance?
- (9) Inspected at every step and finally pressure tested at twice the strength demanded by actual service?
- (10) Made with extra thick bottoms and foot-rings?

If not—for the really best cylinder buy write:

CYLINDERS INC.
DEPT. B12
1200 West Blanche St.
Linden, New Jersey

durafil
CYLINDERS
FOR
LP-GAS

CYLINDERS
INC.

Cylinders, Inc. Successors to the propane and refrigerant cylinder manufacturing business of *Lindberg* Company, Division of Union Carbide Corporation.

1200 WEST BLANCHE ST., LINDEN, N. J.

The "far out" LPG Dealer

NINETY MILES FROM COMMUNIST TERRITORY, surrounded by the blue Caribbean, is the headquarters of Florida Keys Gas Co., the nation's southernmost LPG dealership.

Spotted on that romantic dot on the map, Key West, Florida Keys Gas serves between six and seven thousand customers; half on bottles and tanks, the other half on the 80 miles of gas mains strung around the island. Its service area extends 28 miles up the keys to Big Pine Key.

Key West has a population of about 55,000, including a large contingent of Navy personnel. And it entertains many thousands of tourists each year.

The thermometer has never dropped below 41 deg and the average winter day may be 70 or higher with 60 considered quite cold. In such a mild, even climate, space heating is a very negligible factor.

The chief competition is electricity. The electric company is municipally owned and is a tough competitor, particularly for domestic use. The electric rate schedule is weighted very heavily in favor of the domestic user; the domestic rate is less than one third the commercial. The net result: Florida Keys Gas has about 85 per cent of the available commercial load.

The company began business in 1912 and dispensed manufactured gas until 1946 when it switched to propane for better efficiency.

Two 30,000-gal. tanks are used to feed the propane-air mixture into the city mains. There is also a 30,000-gal. storage tank on Stock Island, immediately east of Key West, and another at Homestead.

Propane comes to Homestead by tank car and is moved by transport the 129 miles to Key West. The company finds it more economical to use commercial transports than to maintain and operate its own. It has two delivery trucks (2000 gal. and 1320-gal.) to serve tank and bottle customers and a fleet of service and bottle delivery trucks.

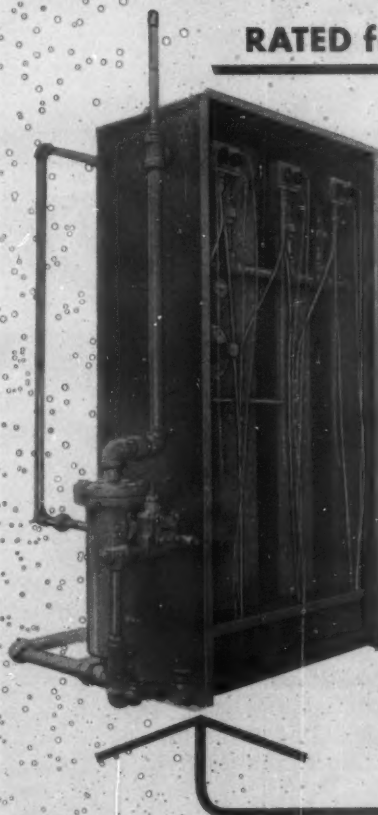
J. ARTHUR THOMPSON

Key West has hundreds of small tourist apartments, requiring appliances, and the company does an excellent appliance business, particularly ranges, water heaters.

At present, the company has 21 employees, many of whom have been with it a long time. The service manager, Jack Perez, literally grew up in the business, since his father was the service manager before him. Allan L. Hampton, the general manager, started as a meter reader 25 years ago.

The visitor to Key West can only conclude that the LPG industry is well represented. ■

RANSOME DIRECT-FIRED VAPORIZERS RATED for COLD WEATHER!



They're DESIGN-RATED

at 20° F. to hold uniform line-pressure in all types of weather, under extreme weather differentials.

CONTROLS ON

LIQUID INLET for added safety and more positive control. Exclusive RANSOME Counterflow Principle produces the utmost in heat transfer efficiency!

VAPOR LINE

IS NOT REQUIRED—therefore, tank pressure cannot be decreased by vapor-loss during normal operation. Vaporizer Burner functions ONLY WHEN NEEDED. SAFE, EFFICIENT, DEPENDABLE!



Listed by
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There's a RANSOME VAPORIZER designed, from 40 to 400 g.p.h., for your requirements. AND, the Complete RANSOME Line of: Burners • Torches • Furnaces • Controls & Manifolds • and Heat Generators. Write for complete information, TODAY!

RANSOME TORCH & BURNER CO.

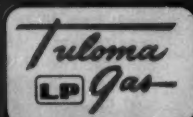
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LINKED

LIQUEFIED PETROLEUM GAS

Now, with LP-Gas and Anhydrous Ammonia, Tuloma offers progressive LP-Gas dealers a complete winter/summer profit package. The first step is a multi-million dollar expansion program. The second step is money in your pocket! Just three weeks after assuming nitrogen products marketing from affiliate American Oil Company, Tuloma announced a nationwide growth plan . . . a growth program with you in mind. Why not take advantage of this money making combination . . . Take Tuloma . . . and GROW!

LP-GAS DIVISION



TULOMA GAS PRODUCTS COMPANY

Peabody American Building / Phone LUther 2-3261 / Tulsa, Oklahoma

For additional information, contact your nearest Tuloma Representative:

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 West River, Illinois / Lawrence, Kansas / Montgomery, Alabama
 El Dorado, Arkansas / Casper, Wyoming / Salt Lake City, Utah
 Houston, Texas / Midland, Texas / Ulysses, Kansas / Ames, Iowa
 Gas City, Indiana

TULOMA ACQUIRES NITROGEN PRODUCTS

**adds new department
in multi-million dollar
expansion move**

TULSA: — In a series of rapidly developing marketing moves, Tuloma Gas Products Company has expanded its nationwide marketing program for LP-Gas and related products to include the line of nitrogen fertilizers formerly sold by affiliated American Oil Company.

NEW DEPARTMENT

R. A. Carter, Tuloma's President, announced first that a new department would be established to handle the sale of nitrogen products, primarily anhydrous ammonia. C. J. Struble, who had been Manager of Nitrogen Products Sales for American Oil Company, joined Tuloma in Tulsa as Vice President for Nitrogen Products. He was also made a director of the company. In an additional management change, Clare R. Wolf was named as Tuloma's executive Vice President and a director. This step was taken to give the expanding firm greater depth on its management team.



C. J. Struble



Clare R. Wolf

EXPANSION PLAN ANNOUNCED

Just three weeks later Carter announced a multi-million dollar manufacturing, distribution, and marketing expansion program for the recently acquired nitrogen fertilizers.

"We plan to expand the business American Oil has already established in the fast-growing farm market for anhydrous ammonia," Carter said. "Anhydrous (without water) ammonia is one of the most economical and effective nitrogen fertilizers. It is demanded by many farmers. Too, its

BUTANE-PROPANE News

characteristics are quite similar to LP-Gas. As a result, it is a natural summer profit builder for any progressive LP-Gas dealer," he explained.

The growth program will include construction of an additional anhydrous ammonia plant to increase Tuloma's supply of product, the building of refrigerated barges, installation of two new storage terminals, the enlargement of a third storage facility, and expansion of marketing outlets nationally.

NEW FACILITIES TO BE BUILT

Carter said that affiliated American Oil Company will construct a large anhydrous ammonia plant in Texas City, Texas. Construction will begin as soon as current engineering studies can be completed and construction contracts can be awarded.

To expand Tuloma's marketing areas, storage terminals will be built at Wood River, Illinois, (where Tuloma recently opened an 8,000,000-gallon LP-Gas underground storage terminal) and at Texas City. Each terminal will have an initial capacity of 30,000 tons and be capable of handling barge or jumbo tank car deliveries.

Another storage facility, currently under construction at Joliet, Illinois, will be enlarged, Carter said. Originally planned for 15,000 tons, this terminal will be increased to 25,000 tons.

Two barges, each with a capacity of 1,700 tons of anhydrous ammonia, will be placed into service to connect these terminals with producing plants.

NITROGEN PRODUCTS GROWTH EQUALS LP-GAS

In commenting on the initial announcement, Tuloma's new vice president for nitrogen, C. J. Struble, said that he expects the U. S. market for nitrogen products to continue to grow at a rapid pace. LP-Gas and nitrogen products sales have increased at average rates of about 11 per cent a year for the past decade.

"Our market forecasters expect farm consumption of anhydrous ammonia alone to reach 3 million tons by 1980," Struble said. "In 1947, U. S. sales of anhydrous ammonia for direct application to the soil were 20,000 tons. By 1960 consumption increased to 765,000 tons."

DECEMBER, 1961

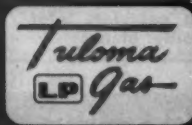
Advertisement

TOGETHER

ANHYDROUS AMMONIA

Now, Tuloma is expanding in another direction — Nitrogen Products! Most important of these is anhydrous ammonia, which is demanded by farmers for direct application to the soil to improve both the quality and yield of their crops. Now Tuloma has both LP-Gas and Anhydrous Ammonia — a double-barreled profit punch! One more good reason to Take Tuloma . . . and GROW!

NITROGEN PRODUCTS DIVISION



TULOMA GAS PRODUCTS COMPANY

One American Building / Phone LUther 1-3231 / Tulsa, Oklahoma

For additional information, contact your nearest Tuloma Representative

in: Iowa, Virginia/Cas, Moines, Iowa, St. Paul, Minnesota/
Wood River, Illinois/Lawrence, Kansas/Montgomery, Alabama/
El Dorado, Arkansas/Casper, Wyoming/Salt Lake City, Utah/
Houston, Texas/Midland, Texas/Ogden, Kansas/Ames, Iowa/
Day City, Indiana

Liquefied natural gas

(Continued from page 47)

the same depth, with a hemispherical bottom, was maintained in frozen condition by continuing circulation of the refrigerant until the tank cover was put in place. Canvas and insulating materials shielded the ground around the tank during the digging operation.

This reduced radiation and possible chance of walls slumping from solar heat.

With the tank cover in place, a 2-in. pipe, carrying on its lower end an inverted sprinkler similar to those used for lawn sprinkling, was lowered into the pit and circulation of LNG started. During the period of cooling the walls to -268 deg F. (through evaporation of the LNG spray as it expanded) the sprinkler head was alternately raised and

lowered. This produced uniform cooling of the earth and allowed progressive freezing outwardly without causing excessive heaving and possible fracture zones.

The pit cover is of $\frac{1}{4}$ -in. aluminum, welded to form a spherical segment with a 24-ft radius at the base. Since the pit is 20 ft in diameter, the roof, insulated with 1 ft of fiberglass, extends 12 ft beyond the rim of the pit. Some 4 ft of this dimension is taken up by the hermetical seal which joins roof and pit walls, and provides a gas-tight unit which can vent only through the regulating devices on the vent line extending through the roof and out a distance of several hundred feet from the storage area. The extended roof coverage, beyond the scope of the seal, prevents the frozen earth from thawing and setting up serious heat losses. At the time the experimental run on the pit—something over two months—was concluded, the frozen section of earth had gradually widened until it had passed beyond the edge of the roof or cover. To provide protection when the freezing action had extended that far, canvas was laid over the ground, which had been given a slope to provide adequate drainage away from the pit.

During the time the pit was in test, no gas leaks were detected, with the pit operated under a pressure of 10-in. wc.

The soil in which the experimental pit was dug is typical of coastal Louisiana; sand, silt, clay lenses and organic material deposited by flood waters, with a water table only a matter of two and a half feet below the surface. There was no flooding problem, the water becoming ice and causing trouble only through the excessive heaving encountered during the excavating operation. The pit is bottomed on a clay stratum, shown by buried thermocouples to be frozen to a temperature of -100 deg F. for about three feet below the base of

Brand NEW!

from **ROCHESTER GAUGES, INCORPORATED**
OF TEXAS

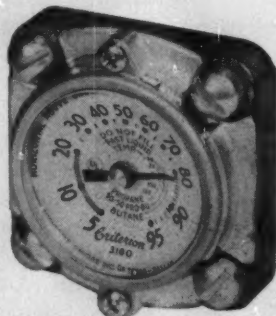
... A UNIVERSAL DIAL REPAIR AND REPLACEMENT KIT THAT WILL MODERNIZE ANY MAKE OR MODEL JUNIOR OR SENIOR LIQUID LEVEL FLOAT GAUGE EVER MADE!

■ NO NEED TO REMOVE THE GAUGE FROM THE TANK.

■ SIMPLEST, MOST POSITIVE ATTACHING METHOD EVER DEvised.

■ NO MORE GAUGE LOSSES DUE TO FAULTY OR DAMAGED DIAL CHAMBERS.

■ NO MORE "OBSOLETE" DIAL CHAMBER REPLACEMENTS.



No. 3180-S17 Dial Kit
Fits any senior size gauge head
(2½" Bolt Circle)

No. 3181-S17 Dial Kit
Fits any junior size gauge head
(2-1/32" Bolt Circle)

Drop us a Post Card. We'll
rush to you complete information
and order blank!

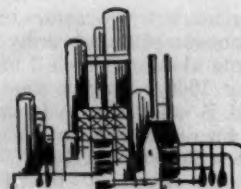
This new kit includes a revolutionary new adapter that modifies your "obsolete" style gauges to use Rochester Gauges exclusive replaceable dial chambers.

Each kit includes a standard percentage domestic tank type dial chamber. Special dial chambers are available.



ROCHESTER GAUGES, INC.
OF TEXAS

2425 CAROLINE • DALLAS, TEXAS
SALES OFFICES: Dallas; Denver; Burbank, California;
Atlanta; Mexico City; London, Ontario.



A reprint of this article can be obtained by writing on company letterhead to the Editor, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Cal.

the hemisphere, and to 0 deg F about five feet below the lowest point of the storage area. At the time these temperatures were determined—30 days after initiating operation of the pit—the ground temperature isotherms given extended about five and eight feet, respectively, beyond the pit walls two feet below normal ground surface.

Boil-off losses from this pit averaged from 3.5 to 4 per cent, depending on barometric and other climatic conditions. Boil-off vapors were led through the vent pipe and discharged through a high stack to avoid hazardous concentration.

The LNG was flowed from an aboveground tank into the pit by gravity, the flow line terminating below the working surface of the liquid. Since the pit was below ground level, and consequently not so situated as to permit gravity outflow, a vapor-lift system was installed. For any pump to operate, liquid must be led to the suction side of the pump with a net positive suction head. This may be defined as the gauge pressure at the suction valve minus the gauge vapor pressure exerted by the liquid.

The "Methane Pioneer," a specially constructed tanker ferrying LNG across the Atlantic to England, utilized submerged pumps successfully for emptying its tanks. Since mounting a pump in the earthen pit would introduce foundation and sealing problems, a vapor lift or gas lift principle was adopted for emptying the pit. In this type of lift, the flow is set up by applying a vacuum at the receiving end of the pipe. The vapor and liquid thus obtained are separated and the liquid is fed to a pump.

At the test site an insulated aluminum box or tank was mounted adjacent to the pit, with the pump mounted within this container. By means of a compressor, lifting power or vacuum is applied to the tank through the suction side of the compressor. LNG then flows

out of the earthen pit and into the "Carter Box" (so termed because of the make of pump submerged therein) and is then pumped through the discharge line to the loading area. In a commercial operation the gas thus vaporized and drawn through the compressor would be heat-exchanged with the now sub-cooled liquid as the liquid is discharged from the pump and fed back into the system.

Comparative costs on working

storage units of the same capacity range from \$25 per barrel capacity for an above-ground metal tank to \$4 to \$6 a barrel for a mined limestone cavity, and down to \$1.25 a barrel for a leached pit or "jug" in a salt bed or dome. Estimates on an earthen storage pit center around \$1.00 a barrel, depending somewhat on the type of soil encountered. Pits up to 100-ft in diameter are feasible, with working depths dependent on soil conditions. ■

BLACKMER'S DO IT YOURSELF "EXCHANGE PLAN"



Saves Dollars and Makes Sense

With Blackmer pumps, you can easily and inexpensively replace the few parts which normally wear—using simple tools without disconnecting the piping. You don't have to take out your old pump, ship it to the factory and get back a rebuilt pump. You don't have to pay "about half the cost of a new pump" plus shipping charges both ways and all that trouble. For example, a set of vanes for our popular TLGL2 Truck Pump costs less than seventeen dollars. Replacing only the worn parts like these restores the pump to like-new performance. The saving makes sense, doesn't it? Better check up on Blackmer pumps. Models from 7 to 300 GPM for everything from bottle-filling to transport-loading. See your distributor or write for Bulletin 500.



"liquid materials handling" equipment

BLACKMER

/ liquefied gas pumps

BLACKMER PUMP COMPANY, GRAND RAPIDS 9, MICHIGAN

Find your Blackmer Man under "Pumps" in the Yellow Pages

ASK PUMP "PROS"

who compare costs
in pennies
per gallon pumped
They'll say . . .

"SPECIFY VIKING PUMPS"



80 G. P. M. Viking LP-Gas Truck Pump

PUMP MEN, whose major job in industry is to keep 'em pumping at minimum cost, are the ones to ask about pumps. These "pump pros" will tell you to specify Viking Pumps because they depend upon them and you can depend upon them, too. Dependability is more important than ever before in these times of rising costs.

It's not only the original cost, but the operating expense and particularly upkeep expense that put Viking Pumps out front in so many comparisons. For instance, Viking has the right size pumps to fit your needs—no need to compromise—no need to buy a pump that is too big, or not quite up to the job.

Viking LP-Gas pumps are available in over 40 different models and in sizes ranging from 5 to 158 gallons per minute. They're built especially for LP-Gas service, delivering top efficiency and full use of energy. Here's where you cut upkeep expense.



Send today for Viking's latest LP-Gas pump catalogs HB and SP527B

VIKING PUMP COMPANY

Cedar Falls, Iowa, U.S.A. In Canada, It's "Roto-King" Pumps
See Our File In Butane Propane Catalog

Introductory 25% SPECIAL DISCOUNT for one unit



One man hydraulic CRANE lifts
1,500 lbs. only \$119.50 Retail
LESS 25%

100's in use by LPG dealers throughout
U. S. and Canada.
Send order or request for additional in-
formation NOW. Sold on guaranteed
performance basis.
Can be mounted on flat bed truck.
2500 lb. model also available.

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If check accompanies order we will pay freight
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associations

Eleven manufacturing firms join GAMA, make 584

GAMA now totals 584 manufacturing firms by recently electing 11 more to its membership. The new firms are:

The Henry Furnace Co. of Medina, Ohio, manufacturers of furnaces, burners and heaters; Higgins Metal Products, Swanton, Ohio, manufacturers of draft hoods, barometric dampers, gas supply lines; Rehrig Safety Controls, Los Angeles, gas appliance regulators; ICASA, Colombia, South America, gas-fired refrigerators; United States Steel, Pittsburgh, supplier for gas industry; Apache Products Co., Phoenix, Arizona, boilers and heaters; Tafco, Los Angeles, gas pressure regulators; Nicolet Industries, Florham Park, N. J., asbestos papers; Fannon Products Division, Hupp Corp., Detroit, ovens and brooders; AiResearch Mfg. Co., Phoenix, gas turbines; and Kaiser Aluminum and Chemical Corp., Oakland, Calif., water heaters.

New officers elected for Ohio LPGA

Ohio LPGA recently elected new officers for the coming year at its annual election meeting in Columbus.

The officers are: President, Kermit Stroh, Moulton Gas Service, Wapakoneta; vice president, Freeman R. Dick, Belgas Service, Bellefontaine; secretary, Curt Mosher, Bayless L.P. Gas Service, Inc., Damascus; treasurer, Arnold E. Muth, Suburban Propane Verkamp Co., Cincinnati; chairman of the board of directors, Floyd E. Grabiell, Youngstown Propane Inc., Canfield.

Directors elected are: Richard L. Mulligan, Terry O'Loughlin, Kenneth E. Shutts, John T. Holden, Ralph Arrick, George E. Kuhn, W. Spencer Kline, and Robert L. Littleton.



CF

... **Control Factor for Delivery**—of vital concern to every UTN dealer is the prompt, **scheduled** arrival of product for his market. Concentrating on this important phase of **UTN** customer-service, our **Traffic Control Panel** is a nerve-center of scheduling, routing and tracing each tank car in the **UTN** fleet, each truck shipment, each barge-load. Constant vigilance and expert handling of this assignment assures **UTN** dealers of deliveries on time — every time.



UNION TEXAS NATURAL GAS CORPORATION
ENTERPRISE BUILDING TULSA OKLAHOMA

NEW SEALED-FLOW Vented Gas Area Heater



- * HERMETICALLY SEALED COMBUSTION CHAMBER... uses one hole in outside wall for air intake and venting.
- * SNAPPY, PRECISE INSTALLATION
- * COOL SAFETY CABINET
- * AGA APPROVED
- * COPPERTONE FINISH
- * HI-CROWN BURNER
- * FORWARD HEAT FLOW
- * UP-FRONT CONTROLS

AVAILABLE IN THREE Sizes:
10,000, 25,000 and 35,000 BTU'S

Dearborn

for LEAKPROOF
PRESSURE-TITE
Connections...

TiteSeal
SEALING COMPOUNDS

Heat and vibration-proof, non-solvent, will not shrink, crack or crumble. Makes all assemblies leak-proof and pressure-tight. Prevents rust, corrosion and joint seizure.



7 BASIC BLENDS

LIQUID WRENCH

LOOSENS
RUSTED BOLTS



RADIATOR SPECIALTY CO.
CHARLOTTE, N. C.

BPN

PEOPLE



Betty Cwiek
Robertshaw



V. A. Cummings
Union Texas



R. B. Schmidt
Mueller—Climatrol



G. M. Hase

BETTY CWIEK recently joined Robertshaw-Fulton's Robertshaw Thermostat Division, Richmond, Va., as director of home economics. KARLYN VAUGHAN recently joined Robertshaw as Miss Cwiek's assistant.

VAN A. CUMMINGS—from assistant LPG sales manager to refinery sales department manager of Union Texas Natural Gas Corp., Tulsa, Okla.

ROBERT V. FAITH—from district engineer to superintendent for the Kansas Cities Service Pipe Line Co., El Dorado. Faith succeeds W. W. DULANY, who recently retired. E. L. STAUFFACHER, vice president of the firm was named as coordinator of light end products. G. C. RICHARDSON—from supply and distribution manager to assistant to Stauffacher.

ALBERT W. ROUSE has been selected as product manager for fluid measuring equipment of A. O. Smith International S. A., export subsidiary of A. O. Smith Corp., Milwaukee. He had been located in the Houston office.

RALPH F. DEAN, JR., formerly of Gas Appliance Specialists, Inc., in Portland, Ore., recently joined Norcold, Inc., Los Angeles, as national service manager.

CHARLES L. COVER — from Esso Standard's petroleum specialties department of Humble Oil & Refining Co., Houston, to LPG sales coordinator in the new headquarters marketing department.

S. ROY MORRISON—from senior staff scientist of Minneapolis-Honeywell Research Center, Hopkins, Minn., to assistant director.

RICHARD B. SCHMIDT—from general sales manager of Mueller Climatrol Division of Worthington Corp., Milwaukee, to manager of marketing. GEORGE M. HASE—from manager of planning of the firm to sales manager.

HOWARD D. HAUGEN, MARTIN M. SHEA, WILLIAM T. MCCORKLE and OTTO L. HUGHES, JR., were recently appointed as district managers for Owatonna Tool Co., Owatonna, Minn. Haugen will cover the area south of San Francisco; Shea, District of Columbia, Virginia, Maryland, Delaware; McCorkle, Florida; and Hughes, Louisiana and Northeastern Texas.

W. C. ARCHER—from vice president to president of Sid Harvey's (Valley Stream, New York) New England division. Archer succeeds MATTY BERNARD who has retired from the firm.

HOMER L. MARRS—from national sales director, communications division of Motorola Inc., Chicago, to vice president of same division. WILLIAM J. WEISZ—from manager of mobile and portable communications products, to vice president of same division. ROBERT L. BORCHARDT—from sales service manager to national service manager.

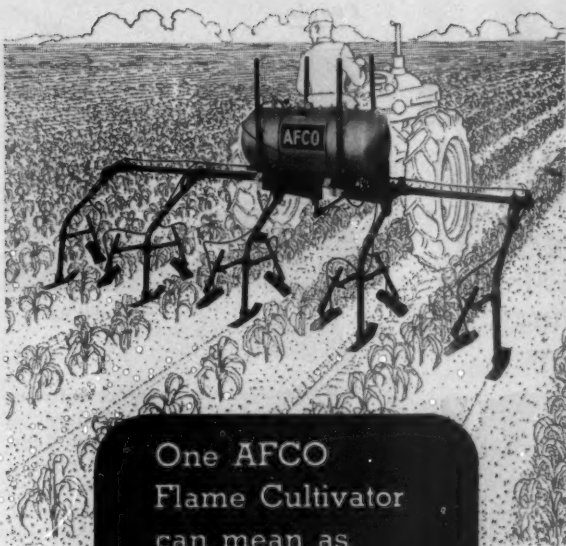


W. G. Weisz



H. L. Marrs
Motorola, Inc.

BUTANE-PROPANE News



One AFCO
Flame Cultivator
can mean as
much as 4,000 gals.
LP-Gas additional
volume IN YOUR
OFF-SEASON

Flame cultivation has caught on. It kills weeds without harming crops. LP-Gas dealers stand to gain two ways — selling AFCO Flame Cultivators, and increasing off-season gas volume.

AFCO Flame Cultivators have a proven, time-tested record. They have been successful on:

Corn Grain Sorghums
Cotton Onions
Soybeans Most Row Crops

AFCO Flame Cultivators are easy to sell. One can do the work of 30 to 40 field hands a day. The 4-row unit can cover 4 to 10 acres an hour. Models available to fit any tractor.

Up your off-season LP-Gas volume—
Sell AFCO Flame Cultivators!

For information, Call your AFCO
distributor or write us direct.

AFCO
FLAME
CULTIVATOR

AFCO FLAME CULTIVATOR CO.

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Did You Know?



Side cabinet mounted spring rewind and electric rewind reels.

PROFITS GO UP WHEN YOU USE HOSE REELS

Time and labor wasted in coiling and uncoiling hose by hand can be better used to make more deliveries. More deliveries mean more profit to you. That's why your product and vapor hose lines should be handled on safe, efficient, time-saving reels.

The wide range of sizes, hose capacities and rewind power units, offered by Hannay reels, lets you select the exact reel or combination of reels for your specific needs. And, Hannay reels are engineered to maintain maximum flow rates with the lowest possible pressure loss through the reel.

Ask your Tank Truck Builder or LP-Gas Equipment Dealer for the free pocket-size guide "Efficient Hose Handling for LP-Gas Delivery", or send your request directly to Hannay.

Symbol of
Efficient
Hose
Handling

REELS BY
HANNAY

CLIFFORD B. HANNAY & SON, INC.
WESTERLO, NEW YORK

**EFFICIENT
ECONOMICAL
QUIET • SAFE**



Oven Furnaces



Melting Furnaces



Muffle Furnaces



Conveyor
Furnaces



Soldering
Furnaces



Retaining Port Nozzles

Featuring Time-Tested POT & CRUCIBLE FURNACES

- for • Salt Bath Heating
• Aluminum Melting
• Soft Metal Melting
• High Temp. Melting
• Liquid Heating
in full range of sizes



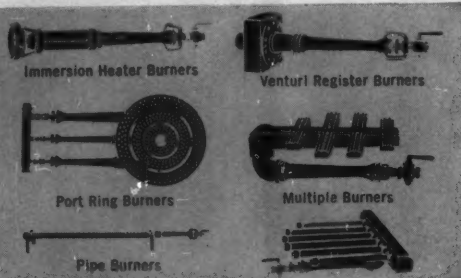
Equipped with BUZZER Venturi Atmospheric Gas Burners—simple, safe, powerful, quiet, economical.

This is but part of the extensive BUZZER line of gas equipment for modern process heating. The complete Hones catalog belongs in your active file. Write for a copy.



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Hones sales representative in**

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Pittsburgh, Pa.
Oreland, Pa.

Southeast

Sanford, N. C.

Signal Mt., Tenn.

St. Petersburg, Fla.

Marietta, Ga.

Louisville, Ky.

Mid-West

Cleveland, O.

La Grange, O.

Bellwood, Ill.

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Milwaukee, Wis.

Southwest

Dallas, Texas

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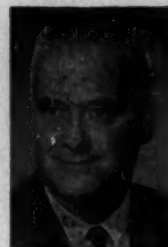
Canada

Montreal, Que.

Toronto, Ont.

Vancouver, B. C.

People



W. A. Hill



G. H. Bell

Sprague Meter Co.

WILLIAM A. HILL was recently assigned to regional sales manager of Sprague Meter Co., Bridgeport, Conn. He will headquarter in Kettering, Ohio. GEORGE H. BELL will work with Hill as a sales engineer and will headquarter in Columbus. They both will cover the central region.

JOSEPH J. MERRICK—from divisional manager for John J. Nesbitt, Inc., Philadelphia, to vice president in charge of sales for the Norman products division.

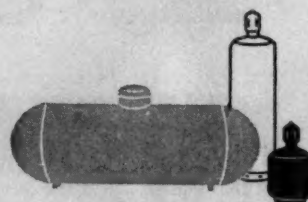
CHARLES E. O'BRIEN, formerly with the Minneapolis-Honeywell Co., has joined Hydrotherm, Inc., Northvale, N. J., as representative in Long Island and Brooklyn, New York.

JACK WHALING—from divisional sales manager of Holly-General Division of the Siegler Corp., Pasadena, Calif., to vice president in charge of sales.

C. L. PARKHILL, JR., was recently appointed vice president of Algas Fuel Supply Co., subsidiary of Union Oil Co., Santa Fe Springs, Calif.

HOWARD E. MIDKIFF—from sales manager of Stupp Corp., Baton Rouge, La., to vice president for sales.

VICTOR H. WEBB and ROBERT C. HENSLEY recently joined Grove Valve and Regulator Co., subsidiary of Walworth Co., Oakland, Calif., as sales engineers. Webb will headquarter in Corpus Christi, and Hensley in Odessa, Texas.



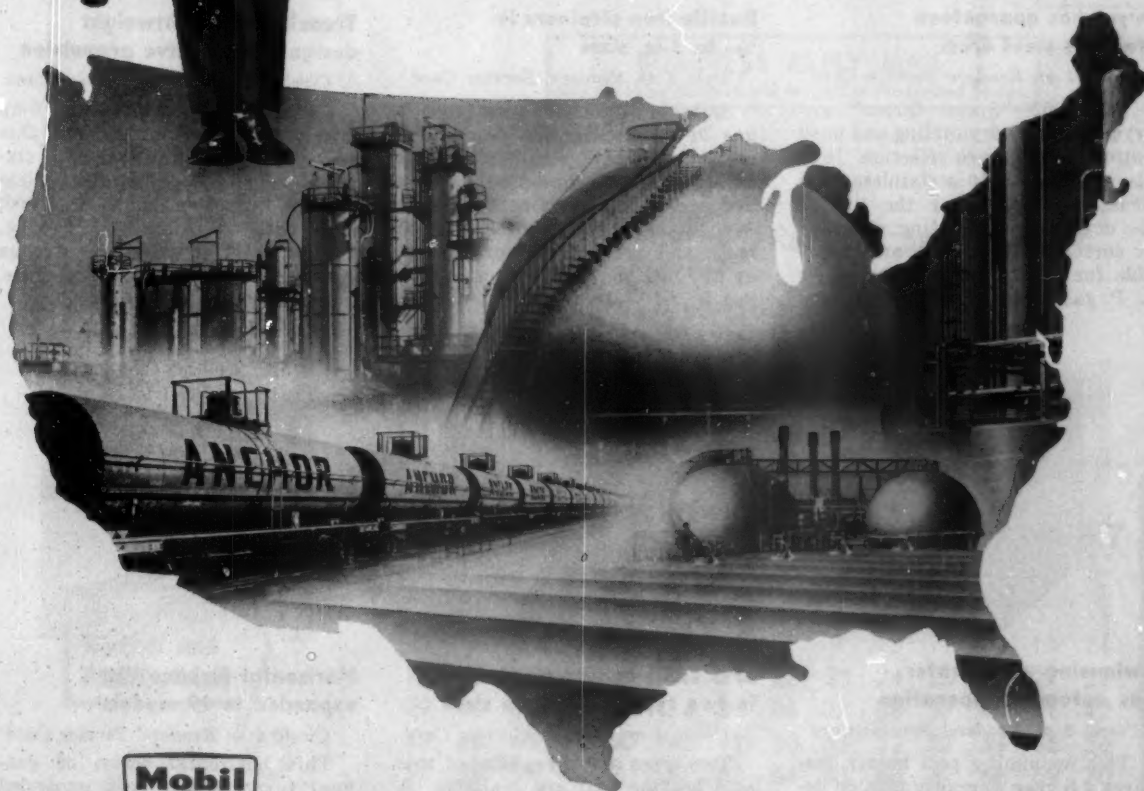
BUTANE-PROPANE News



FACILITIES FOR THE NATION...AN INTEREST IN YOU!

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the facilities and skills to give you prompt, personal
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eager to put these facilities to work in your interest
. . . always anxious to improve product and service
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● Call your Anchor man — Tulsa, LU 2-7261



ANCHOR PETROLEUM DIVISION
Mobil Oil Company
TULSA, OKLAHOMA



For further information on any items in this section use the convenient Univac Readers' Service postcards on pages 65, 66.

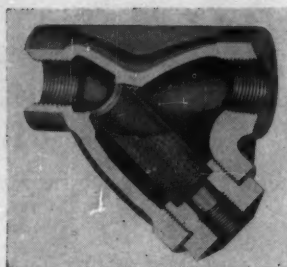
New Products and Free Literature



Dryer has guaranteed stainless steel drum

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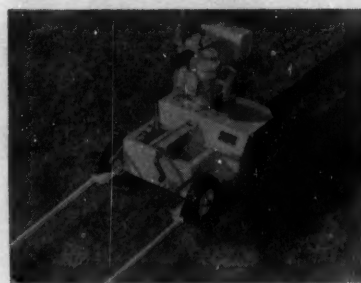
The 1962 "Speed Queen" gas dryer has twin-dry cycling and push button temperature selection. It is also equipped with a stainless steel drum guaranteed for the life of the dryer against rusting, chipping or corroding. The units are adaptable for natural, manufactured, or L. P. gas. Speed Queen.



Ductile iron strainers in 1/4- to 3-in. sizes

Circle 3 on Readers' Service Card

Suitable for steam, water, air, gas or chemicals, this No. 801 J series ductile iron strainer features an accurately machined body recess and screen cap. Strainers come in 1/4- to 3-in. sizes with screwed ends, and are suitable for 600 psi at 650 deg. F or 1000 psi at 100 deg F. OPW-Jordan Corp.



Trencher has lightweight design and positive propulsion

Circle 5 on Readers' Service Card

Powered by a heavy-duty 6-hp Briggs & Stratton engine, this trencher is self-propelled by a six-speed winch drive. It also utilizes most of its power for digging with very little required for creeping. It has built-in protective torque limiter and self-transporting drive. Davis Mfg. Co.



Swimming pool heater has automatic operation

Circle 2 on Readers' Service Card

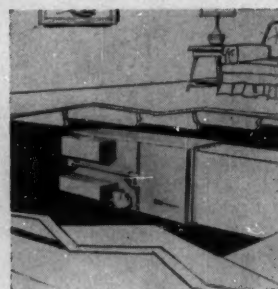
This swimming pool heater features a 5-year warranty plan on descaling. This is possible because of the combination of automatic temperature control and perfect balance of high velocity water flow through two tubes of the new heat exchanger design. Raypak Co.



LPG salamanders available in two types and three sizes

Circle 4 on Readers' Service Card

Two types and three sizes of this spot heating unit are available. A high pressure model operates on 10-lbs pressure and puts out 85,000 Btu per hour. Low pressure models operate on 6-oz pressure with a 35,000 and 86,000 Btu output. Aeroil Products Co.



Horizontal furnace line expanded to 10 models

Circle 6 on Readers' Service Card

This horizontal series of gas-fired furnaces has been expanded from 4 to 10 models. The draft hood is changeable to either side for increased installation flexibility. Optional high air flow blowers are available for year-round air conditioning. Chrysler.

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Gas wall heater completely re-styled and re-engineered

Circle 7 on Readers' Service Card

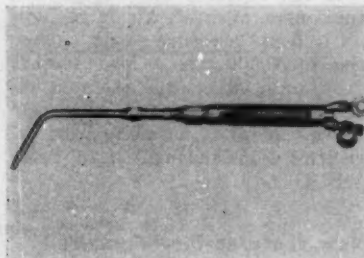
This gas wall heater is newly re-styled and re-engineered. Burner, heat exchanger, exhaust tube are ceramic coated. Manufacturer claims the heater to be the only recessed one with a finned heat exchanger. Stewart-Warner Corp.



No need for large storage tank with pool heaters

Circle 8 on Readers' Service Card

"Sanimaster" heaters will heat a pool with 400 to 700 sq ft of surface area. Specifically designed as pool heaters, they provide a compact installation without a large storage tank, eliminating useless cycling and fuel waste. Rheem Mfg. Co.



Automatic torch offers gas and oxygen savings

Circle 9 on Readers' Service Card

This automatic torch offers users up to 50 per cent reductions in gas and oxygen. It features a serrated thumb control which—when turned to "off"—reduces the flame to a pilot light, cuts back fuel and oxygen consumption. Harris.

Free literature available from advertisers

For more information circle Numbers 30 through 56 on Readers' Service Card, pp. 65, 66.

30. A complete profit story on two-way radios is now available from Motorola, Inc. (p. 13).

31. Information on "durafil" cylinders is obtainable from Cylinders, Inc. (p. 52).

32. Gas floor-furnace sales plan information is being offered by Empire Stove Co. (p. 1).

33. Vapor meter demonstrations are being offered by Rockwell Mfg. Co. (back cover).

34. LPG meters are covered in Bulletin 316 by American Meter Co. (p. 22).

35. A booklet, "Efficient Hose Handling for L.P. Gas Delivery" is being offered by Clifford B. Hannay & Son (p. 61).

36. Details on salamanders, blowers, and infra-red heaters are available from Insto-Gas Corp. (p. 70).

37. Literature and prices on "Vanasil" pistons can be obtained from Johnson Machine Shop (p. 75).

38. Information on repairing old nozzles is offered by Parkhill-Wade (p. 73).

39. Wall thermostats information is available from Robertshaw-Fulton Controls Co. (p. 26).

40. LPG pumps are covered in catalogs HB and SP527B by Viking Pump Co. (p. 58).

41. Flame cultivator details are available from AFCE Flame Cultivator Co. (p. 61).

42. Incinerator valve information is offered by Penn Controls (p. 19).

43. Information on Hackney LPG systems is now available from Pressed Steel Tank Co. (Nov. second cover).

44. Information on the Philgas brand is being offered by Phillips Petroleum Co. (Nov. p. 11).

45. RegO systems are described in a folder by The Bastian-Blessing Co. (Nov. p. 14).

46. LPG pumps are discussed in Bulletin 500 by Blackmer Pump Co. (p. 57).

47. Advantages of LPG carburetion are discussed in a booklet by Century Gas Equipment (p. 73).

48. Automatic control regulator details are available from Fisher Governor Co. (p. 2).

49. Information on transports is available from Lubbock Machine & Supply Co. (p. 3).

50. Tradeline controls are described in a guide by Honeywell International (p. 50).

51. Information on direct-fired vaporizers is available from Ransome Torch & Burner Co. (p. 53).

52. Information on how to make money as a Skelgas dealer is offered by Skelly Oil Co. (p. 49).

53. LPG distributor information is offered by Texaco Inc. (p. 7).

54. Transports are covered in free literature by Mississippi Tank Co. (p. 17).

55. Complete information on gauges is available from Rochester Gauges, Inc. (p. 56).

56. LPG items are covered in a catalog by Fine Products Co. (Nov. p. 88).

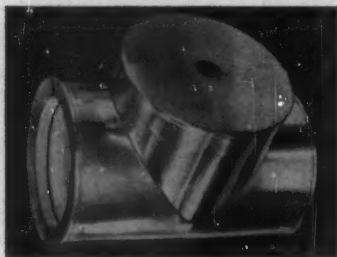
New products



Built-in oven slides in under a countertop

Circle 10 on Readers' Service Card

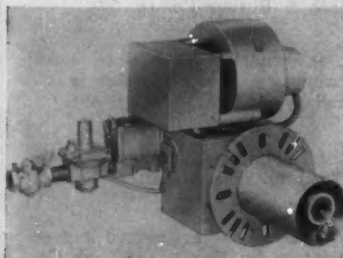
This LEC series undercounter oven requires no base panel or cabinet and is designed to slide into place under a counter top. The oven is 18-in. wide and has a 24-in. cook top. Stiglitz Corp.



Aluminum valve cover easily removable

Circle 11 on Readers' Service Card

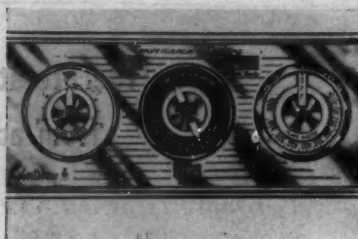
This preformed aluminum gate valve cover comes with insulating materials. The covers are easily removed to facilitate packing replacement in the valve, and are held in place with screws, bands or pop rivets. Premetco.



Power burner electrically proves mixture

Circle 12 on Readers' Service Card

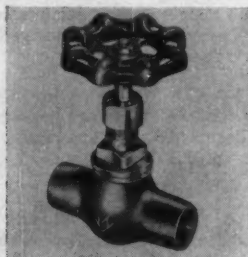
This electrically controlled gas power burner safely proves that the proper volume of air is moving for good combustion. A 20-second pre-purge period clears the combustion chamber of any unburned gas. Adams Mfg. Co.



Automatic control reduces to serving temperature

Circle 13 on Readers' Service Card

A new oven control system combines an improved version of the reliable "Flame Master" gas oven thermostat with an automatic time control to provide easier cooking. The control automatically reduces the oven from its cooking temperature to an optimum serving temperature. Robertshaw-Fulton's Thermostat Div.



Copper-to-copper valve line expanded

Circle 14 on Readers' Service Card

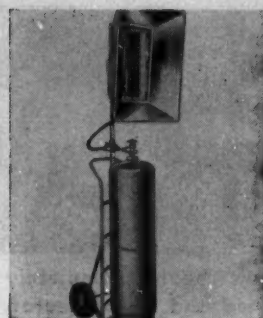
An addition to a copper-to-copper line of gate and check valves is a copper-to-copper globe valve. It comes in sizes of $\frac{3}{8}$ in. to 2 in. All items are recommended for general service with steam, water, oil or gas. Milwaukee Valve.



Gas-fired furnace line includes new models

Circle 15 on Readers' Service Card

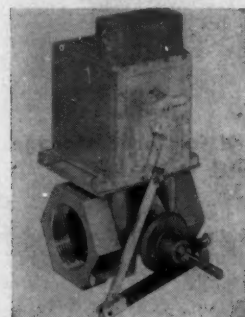
A new gas-fired furnace line, designed for economy or original cost, now includes "lowboys," "high-boys," and counter-flow units. Capacities range from 75,000 to 200,000 Btu inputs. The smallest unit stands 40 $\frac{3}{4}$ in. Mueller Climatrol.



LPG infra red heater—shock-proof metal construction

Circle 16 on Readers' Service Card

This LPG infrared spot heater has a nickel alloy grid or "Inconel" metal that withstands thermal and mechanical shock. Units and tanks are mounted on wheels for complete portability. The heater is available in three models which accommodate up to 100 pound propane tanks. Van Dorn Iron Works Co.



New butterfly valve controls up to 5 psi pressure

Circle 17 on Readers' Service Card

A new butterfly valve is suitable for control of either air or gas flow up to 5 psi pressure—with capacities to 20,000 cfm. A low pressure drop unit, it has a streamlined, properly sized throat to allow sensitive control of normally used capacities. Mid-Continent Metal Products Co.

New features for "Forsaire" gas-fired wall furnaces

Circle 18 on Readers' Service Card

This line of counterflow, gas-fired wall furnaces offers more refinements and greater flexibility. A new feature is a control system which permits the selection of high or low heat delivery and corresponding blower speed. Blowers deliver up to 430 cu ft of warm air per minute. Williams Furnace Co.

SEE WHY THESE PUMPS CUT BULK TRANSFER COSTS !

SPECIAL DESIGN FOR HANDLING LP-GAS

Close tolerances give high efficiency.
Direct connection to standard electric motor —
saves speed reduction costs.
Longer life — no service attention needed.
Easy to pipe — have straight through flow.
Safest, most trouble-free mechanical seal.
Superior construction — top efficiency maintained longest.
Exchange pump plan — no time lost from service.
Pumps expertly repaired and tested.
Underwriters' or standard models available.



For delivery truck service
where flexibility is desirable.
20 GPM at 500 RPM or
35 GPM at 800 RPM
model TC-H.



For average
truck service
50 GPM model TC-2
Flanges Available



For "high flow"
delivery truck service
100 GPM model TC-3
Flanges Available

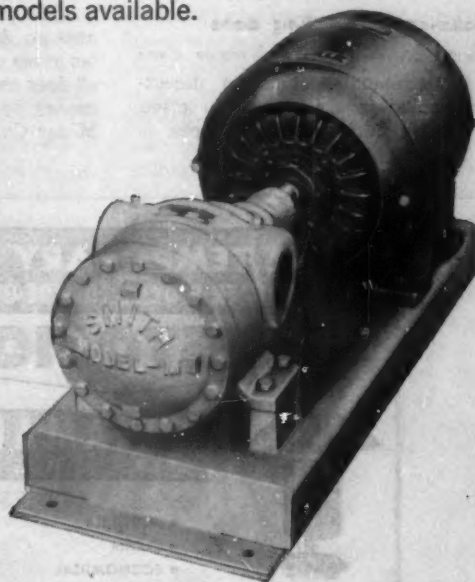


For trucks with
automatic transmission
50 GPM model ATC-2
100 GPM model ATC-3

MORE FUEL DELIVERED FASTER AT LESS COST!

Flanges optional
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Our ads
never stretch the truth,
just your dollar



Murray 2-3944 and SYcamore 9-9567 (Area Code 213)

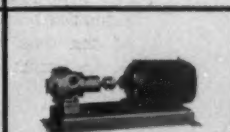
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Southeastern Distributor: Pond-Johnston Inc. Warehouses in Mobile, Ala.; Jacksonville, Fla.;
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Will fill all small tanks
as fast as any larger pump.
100-lb. cys. in 4 minutes or less,
20-lb. cys. in 1 minute or less,
fork lift tanks no problem.
10 GPM models EC-1, EG-1,
MC-1, and QC-1.
15 GPM model EC-H.



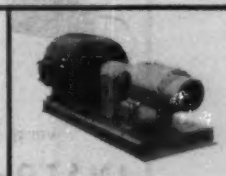
For small volume transfer work.
20 GPM model MC-1044
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For medium volume transfer.
50 GPM model MC-2
or MC-2Q (higher pressure,
quiet running)



For large volume transfer
100 GPM model MC-3
Flanges Available



For high capacity loading
150 GPM model MC-4

FREE LITERATURE

Ethylene booklet available

Circle 19 on Readers' Service Card

A new 20-page booklet on ethylene has just been published. It is designed for developmental chemists and engineers using ethylene from cylinders. A table of thermodynamic properties of liquid and saturated ethylene vapor is also included. U. S. Industrial Chemicals.

Lift truck power curves

Circle 20 on Readers' Service Card

"Power-crater" lift-truck engines are described in a new 8-page two-color catalog, which includes power curves covering the four-cylinder LPG engine used in the "F" series lift trucks. Allis-Chalmers Mfg. Co.

Make-up air-heating data

Circle 21 on Readers' Service Card

Comprehensive data on direct-fired make-up air heating is given in a new bulletin. Eight-pages, it

traces the need for replacement air to compensate for that exhausted to remove dust, fumes, vapors, and other contaminants from process equipment. Maxon Premix Burner Co.

New vent tables and handbook

Circle 22 on Readers' Service Card

A new edition of the "Metalbestos Gas Vent Tables and Handbook" is now available. This 24-page edition is in two parts: Part 1 contains vent tables, providing tabulations of appliance heat input for all vent sizes from 3-in. to 24-in.; Part 2 is a gas venting guide handbook, covering methods of dealing with a wide variety of venting situations. William Wallace.

Fleet operation booklet

Circle 23 on Readers' Service Card

A 10-page bulletin is now available on fleet operations. The booklet gives comparisons and analyses of fleet owners, tells how they saved money by using Ford trucks. Ford Motor Co.

Two-way radio brochure

Circle 24 on Readers' Service Card

Tubed and transistorized VHF two-way radios are featured in a 24-page brochure, "Two-way Mobile Radio." Booklet ECR-904 lists radios of 100 watts and less. General Electric.

Pump, motor valve illustrated

Circle 25 on Readers' Service Card

A new bulletin illustrates and describes two new components, a new combination pump and motor and a new control valve for hydraulic drive systems. The systems are designed for delivery and transport trucks handling LPG and industrial liquids. Ardmore Products.

Ball valve details

Circle 26 on Readers' Service Card

A new type stainless steel ball valve, designed for corrosive fluids, gases, and general corrosive services, is described and detailed in a new full-color catalog sheet. The operation of the valve and advantages are shown in cutaway views. Lunkenheimer Co.

Supplement on solenoid valves

Circle 27 on Readers' Service Card

Catalog supplement sheets describing new 2-, 3-, and 4-way solenoid valves are included in a new 16-page booklet. Maximum pressure ratings are also listed. Automatic Switch Co.

"Open-line" lease plan

Circle 28 on Readers' Service Card

A new brochure outlines the details of a new "open-line" lease plan for extra-long terms. It contains charts showing leasing costs from 3 to 12 years. Full explanation of the plan is included. Nationwide Leasing Co.

Water heater literature

Circle 29 on Readers' Service Card

New, colorful and informative literature on Permaglas water heaters is now available. Complete specifications and related data on each of the five models are illustrated. A. O. Smith Corp.

**FOR TEMPORARY HEAT
ON ALL WINTER WORK...INSIDE-OUTSIDE...USE**

INSTO-HOT



SALAMANDERS
LP GAS 4 MODELS

FEATURES

- PORTABLE
- CLEAN
- ECONOMICAL
- NO FUMES
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After 22 years on LPG, the pioneer dairy fleet user still calls it

"The Ideal Fuel"

"IN CITY DELIVERY—ESPECIALLY HOUSE-TO-HOUSE DELIVERY where engines do so much idling and wear excessively—there just is no substitute for LPG for long motor life and general good performance."

If that statement had been made by an eager young LPG carburetion proponent, it might invite some doubts. But it must be taken as a respect-demanding endorsement by an extremely well-qualified, highly authoritative voice of experience—for it was recently made by W. J. Thompson, transportation manager of the Carnation Co.

Under Thompson's guidance, the Carnation fleet converted its first vehicle to LPG way back in 1939 and thus became the first dairy fleet to use the fuel. The company has had 200 or more trucks running on LPG for 20 years. Currently, it has approximately 500 LPG-burning units, including some 325 trucks and semi-tractors, about 90 lift trucks, and a similar number of refrigerated trailers.

Once these facts are assimilated in some detail, Thompson's endorse-

ROBERT CLAY • Managing Editor

ment begins to assume its true stature.

"We made our first LPG conversion in 1939," Thompson recalled. "It was on a 1936 Ford V-8 retail delivery truck from our Los Angeles fleet. Then, as now, the fuel was primarily butane. The truck performed so well—even with the type of conversion equipment available at the time—that in a short time we converted three more retail trucks. The performance of these first four conversions was so much better than that of trucks operating on gasoline that we decided to start converting the entire Los Angeles fleet. This meant we would have to put in our own storage tank and pump to get bulk fuel prices."

A 6000-gal. underground tank and a fuel dispensing station were installed. After this project was completed, the company began converting trucks until the entire fleet at that location, a total of 210 vehi-

cles, was on L. P. gas. Of various makes and models, the converted trucks were used for retail house-to-house delivery as well as wholesale milk and ice cream delivery. In size, the converted vehicles ranged from small pickups to long-haul heavy-duty semi-trailers.

One of the most unusual conversions was made in the early '50's. A diesel engine producing 150 hp with a 9.5 to 1 compression ratio was switched to pure propane. After the conversion, it developed "well over 200 hp" and still runs "beautifully." In a semi-tractor, it hauls a gross load of 76,000 lb. and averages 3 mpg.

"I even converted a '38 Plymouth coupe I used for going to work. That conversion was largely for experimental reasons—to find out for myself how specific practices and pieces of equipment affected performance. During the war, I found myself in an enviable position, since butane wasn't rationed. I ran the car on LPG for five years, from '40 to '45."

With his converted personal car

A BPN Exclusive



Biggest members of Carnation's LPG-burning fleet are over-the-road vehicles like this tractor and pair of 21-ft ice cream trailers. The refrigeration units utilize 10 hp underslung engines. A total of 200 gal. of LPG can be carried on such a rig, a 60-gal. tank on each side of the tractor and a 40-gal. tank under each trailer.



Newest members of Carnation's LPG-burning fleet are a number of cab-over-engine retail delivery units identical to this one. Note the tank under the forward part of the body. These units are not refrigerated by LPG, but use cold storage plates in the body.

Power

and the converted truck fleet, Thompson began accumulating an assortment of data highly favorable to LPG. The big original reason for converting was reduced fuel costs. But soon, other pleasant operating experiences came to the fore.

"We found that we would get two to three times the life out of our engines. With gasoline, we used to get 20,000 to 25,000 miles between overhauls. With butane, we could frequently run an engine ten years without anything more extensive than routine tune-up work. In ten years, one of our trucks accumulates about 85,000 road miles. And, since the engine is idling all the time during stop-and-start retail delivery, that's equal to about 250,000 engine miles. That's how much mileage we were putting on, without even pulling the head or grinding a valve.

"Then we found that we were getting fewer cracked blocks and cylinder heads. LPG must be heated in the regulator by cooling system water before it will vaporize properly. If the water gets low and fails to go through the regulator, the engine will stop. This usually happens before the water is low enough to damage the engine.

"And, we found we were having less clutch trouble. That was because the drivers no longer had to slip the clutch before the engine was completely warm on cold mornings."

A more familiar advantage of

LPG, increased oil life, also made itself evident. For years, the company had been testing engine oil every 1000 miles—and changing it, if that seemed desirable. That procedure is no longer followed. Tests showed that the oil could stay in for 16,000 miles and still be in good condition. However, since there is no oil dilution in LPG-burning engines, oil viscosity tends to increase slightly at 6000 to 8000 miles. Therefore, the company has made a standard policy of changing wholesale and retail delivery trucks in stop-and-start service every 6000 miles and highway transport tractors every 8000 miles. This policy

has proved highly successful, as indicated by Thompson:

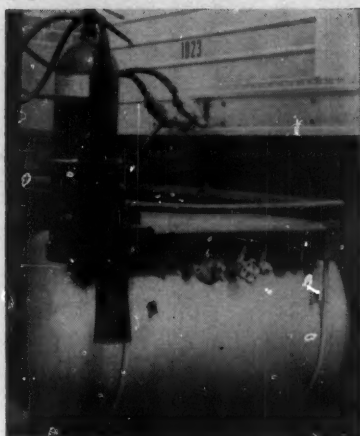
"I recall one engine we pulled down after it had run nine years in a wholesale milk delivery truck. It had never had anything more than a tune-up. In this particular case, its 76,000 miles were probably equal to about 175,000 engine miles. The block was worn less than 0.003 in. and the crankshaft was still standard, proving that with proper lubrication and no contaminants in the oil, the life of a motor can be greatly extended."

Carnation has a rather simple maintenance program: a minor tune-up every 5000 miles and a major one every 10,000 or 12,000 miles. In both cases, the trucks are put on a dynamometer, but there the similarity ends. The minor tune-up is mostly to check the timing. If the engine is producing sufficient power, nothing else is done—unless something obviously needs service. The major tune-up is a complete, bumper-to-bumper, fine-tooth-comb treatment. Everything is checked. All necessary repairs are made.

Carnation's main Los Angeles production and service facilities occupy about 2½ city blocks with one block devoted to truck parking and one-half block to service facilities. A prominent feature of that half-block is the somewhat unusual 10,000 gal. (water capacity) LPG storage vertical tank. Nearby,

Smallest members of Carnation's LPG-burning fleet are fork lift trucks and "mules," such as these two. These little mules push big trailers around the Carnation yards—including up inclines—with amazing ease.





Talk about handy safety equipment! On this semi-tractor, the fire extinguisher is within inches of both the driver and the LPG tank.

there's a fuel-dispensing island. Both units were installed in 1957. (See BPN, April 1957, p. 69, for details.)

With the exception of the few converted diesels, most of Carnation's LPG-powered vehicles use a mixture that is predominantly butane, Thompson favors a 70 per cent butane, 30 per cent propane mixture; but accepts an occasional 60/40 mixture.

"We get better mileage with butane," he declares. "Of course, in colder climates, we use propane because of its lower boiling point."

Thompson believes that LPG has six big advantages over gasoline:

1. It does not leave unburned deposits in the combustion chamber. It doesn't leave carbon deposits because it enters the chamber as a gas, not an atomized liquid, and therefore burns completely. It won't leave lead compound deposits because its naturally high octane rating eliminates the need for such additives. It can't leave varnish deposits because it is completely free of such materials.

2. It does not produce poisonous carbon monoxide fumes or obnoxious smoke because it burns completely.

3. It provides an easier starting, smoother operating engine with each cylinder doing its full share of the work. That's because—as a readily-vaporized dry gas—it mixes better with intake air and is more evenly distributed to each cylinder.

4. It does not dilute crankcase oil because, being a dry gas, it has no

"SUMMER LOAD UP 100%"

"Because of **CENTURY** LP-GAS CARBURETION PROGRAM"



Says R. E. THATCHER, Director of Sales Promotion, VANGAS, Fresno, California

"Vangas began a concentrated carburetion program in 1955. During the five years since then, more than 1,000 Century conversions per year have been sold.

This program has reduced the winter-summer load ratio from 3 to 1 to the present ratio of 1½ to 1. CENTURY carburetion sales have resulted in an overall 30% increase in gallonage in our California operation.

Our service trucks are especially designed to make installations in the field. They are equipped with welders, both gas and electric, (powered by Century) hoist, vise and ignition tune-up instruments, to name but a few of the tools carried on each of these units.

The mechanics carry complete parts and specification information to help them in ignition tune-up which constituted 90% of all service calls.

Vangas has trained a number of the large farm maintenance departments to care for their own service. These farm mechanics then become Century carburetion boosters.

Vangas uses Century carburetion because of the simplicity of design which assures dependability and top operating efficiency with a minimum of service."

GET THE FACTS...LEARN HOW YOU CAN BALANCE YOUR LOAD
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**SAFETY IN
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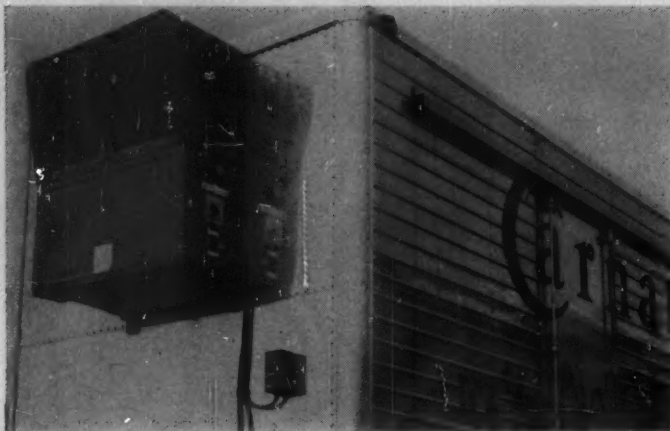
REPAIR YOUR OLD NOZZLE

Parts and adaptors are in stock

For information ask

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475 Huntington Drive, San Marino, Calif.



These are two views of a refrigeration unit typical of those used in the Carnation fleet. An LPG-powered engine under the trailer (right photo) generates electricity for the electric refrigeration unit up at the front (left photo). Note the fuel tank directly behind the boxed-in engine-generator unit.

Power

liquid to wash down the upper cylinder wall lubricant. The result is less wear on cylinder walls and bearings—and a longer useful life for the oil.

5. It requires a simpler installation. Not only is the fuel pump eliminated, but the LPG carburetor is much simpler, with no delicate jets or accelerating pumps.

6. It is cheaper in most parts of the country.

Should anyone question the safety of LPG, Thompson has a ready answer and substantiating evidence to back it up:

"Most of the fear of this fuel has been the direct result of make-

shift and unsafe installations. As with any other combustible fuel, certain precautions are required to make it safe. With these safety features, it is no more hazardous—and, in some cases, less hazardous—than gasoline. Investigations have shown that insurance rates in nearly all cases are the same for LPG- and gasoline-equipped trucks."

Impressive as the Carnation carburetion story is, LPG has still barely scratched the surface of this company's fleet operations. As previously indicated, the approximately 500 propane-burning units include 325 trucks. Of that number, about 300 are in Southern California and the remaining 25 are in Missouri and Iowa.

But, from the Carnation world headquarters on Los Angeles' famed Wilshire boulevard, Thompson manages a 5500-vehicle fleet that operates throughout the United States and in Canada and in the Philippines. In addition, Carnation vehicles are connected with the company's operations in Europe, Africa, South America, and Australia.

If Carnation is so sold on LPG, why isn't its entire fleet running on it? Many factors are involved. For one thing, the company will never go completely on LPG. Two big reasons are that only electric lift trucks are permitted where food-stuffs are in preparation and that many company cars operate where there are no LPG filling stations and they operate either singly or in such small numbers that a company dispenser would not be warranted.

Beyond those limitations, each case must be considered individually. While Thompson is completely sold on propane, some individual fleet managers still are not quite convinced. Because Thompson is more sold on butane than on propane (for the previously-mentioned mileage differential reason), there is less likelihood of fleets in the colder regions being converted.

Aside from these factors, the company has big plans for conversion.

"Our Southern California fleet is in the throes of changing to a new type of truck," said Thompson. "When the change comes, we will, no doubt, be running the entire fleet on LPG. We have not made

The Los Angeles-based portion of Carnation's LPG-powered fleet is fueled at this dispensing island on the company's extensive downtown facilities. Both gasoline and LPG are pumped from the island. Note the 10,000 gal. vertical storage tank in the background.



Engines vs. Motors

A PROGRESS REPORT ON THE NATIONAL ENGINE USE COUNCIL'S 18-month-old research program was presented at the recent Idaho-Nevada-Utah LPGA convention. Utah State University's Guy O. Woodward, one of the founders of the program, supplied first-hand details.

Initial discussions were held in May, 1960, with a number of engine and engine accessory manufacturers attending. Talk centered on one subject: "promoting greater use and acceptance of combustion engines as power sources." The idea was to combat efforts to promote electric motors by the National Power Use Council.

In July, 1960, the engine promotion group approved a plan for a four-part research program. It was to consist first, of gathering all information available from industry; second, analyzing the data collected and determining areas of laboratory studies; third, conducting the laboratory studies, and fourth, helping in setting up some field evaluation procedures.

"One of the great needs of the research program is more realistic fuel consumption information," said Woodward. "The Nebraska Tractor Test data has been used as a guide since the late 1930's, and little change has

been made in their so-called standards since that time, in spite of improved fuels and engines. This phase needed immediate up-dating.

"A second and more important need was that of the potential engine life with various types of fuels. Present standards give no consideration for LPG. The engineer, in most cases responsible for selection of a power unit, gives no consideration of LPG in reducing repairs and maintenance or increasing engine life. This is one of the major considerations of the research program."

Woodward went on to say that a review of all available literature was made, analyzed and a need for field and laboratory testing determined. Some teaching aids have been prepared for dissemination by the council, and a research program will be commenced early next spring.

"The program of the NEUC will not be in competition with the LPGA, nor with such other associations as the AGA, the ICEI, the API," Woodward stressed. "It will be compatible with these and perform a function in bringing these interests together for a single cause. The importance of each association remaining intact and doing its own program will even be more important."

(In October, Paul Lady, editor of *Gas Industries*, was named managing director of NEUC. He will headquarter in Los Angeles.)

any specific cost calculations as to how much money we will save, but it should be a substantial amount—probably in the neighborhood of \$40,000 to \$50,000 each year."

Since about 300 units of the 1300-vehicle Southern California fleet are now on LPG, that will mean 1000 vehicles going on butane.

But even before all this happens, Carnation may shift the "largest LPG-powered dairy fleet" title from Southern California to a southwestern state. Plans for this project are somewhat confidential; but in a few months, a 400- to 500-vehicle fleet may be converted. If that hap-

pens, the Southern California fleet would have to get well into its monumental conversion job before it could win back the "title."

Thus, it looks very much as if Carnation will—in a very short time—purchase or convert 1500 LPG vehicles, increasing the size of its LPG-powered fleet approximately 600 per cent.

There just does not seem to be any room for doubt of Thompson's conviction—or his authority to state that conviction:

"After 22 years experience with L. P. gas, we still feel that it is the ideal fuel."

for long wear
low vibration
fast pick-up

**JOHNSON
VANASIL
PISTONS**



JOHN DEERE
Vanasil or
Aluminum
Pistons—jump
power output
as much as
25%



**MINNEAPOLIS-
MOLINE**
"U" Vanasil
Pistons—light-
weight, yet tough
as cast iron

L1 conversions of John Deere and MM-"U" tractors result in more power and performance with Johnson Vanasil Pistons. Newly patented Vanasil amazingly combines the hardness of cast iron with the lightness of aluminum. Precision Johnson machining and engine "know-how" keeps pistons snug without sticking. Tractor vibration is kept low... stalling eliminated... pick-up increased.

For John Deere A, G, "50", "60" and "70"... also Minneapolis-Moline "U". Johnson Aluminum Pistons are available for John Deere A, B, D, G and H models



JOHNSON COLD MANIFOLDS FOR LP GAS keep constant flow at correct temperatures... are available for:

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International H, M, W-9
Allis-Chalmers W, WC, WD, WF
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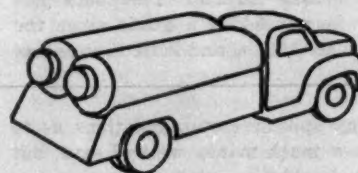
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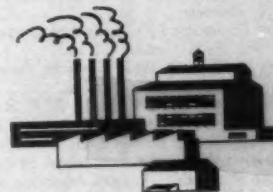
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- Books to Help You Manage

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Dryer, combo sales slip	Feb. 21
Expanded markets seen in housing plan	Apr. 10
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1962

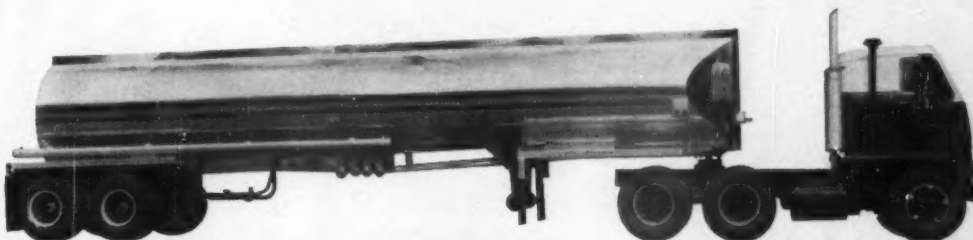
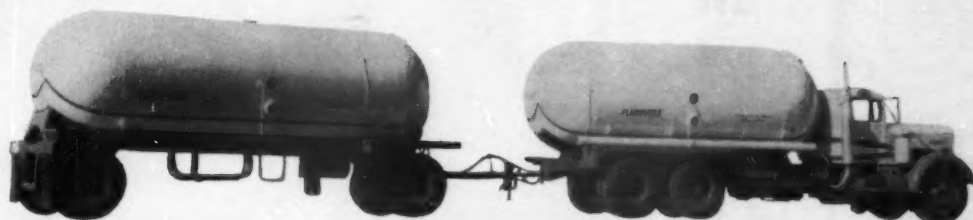
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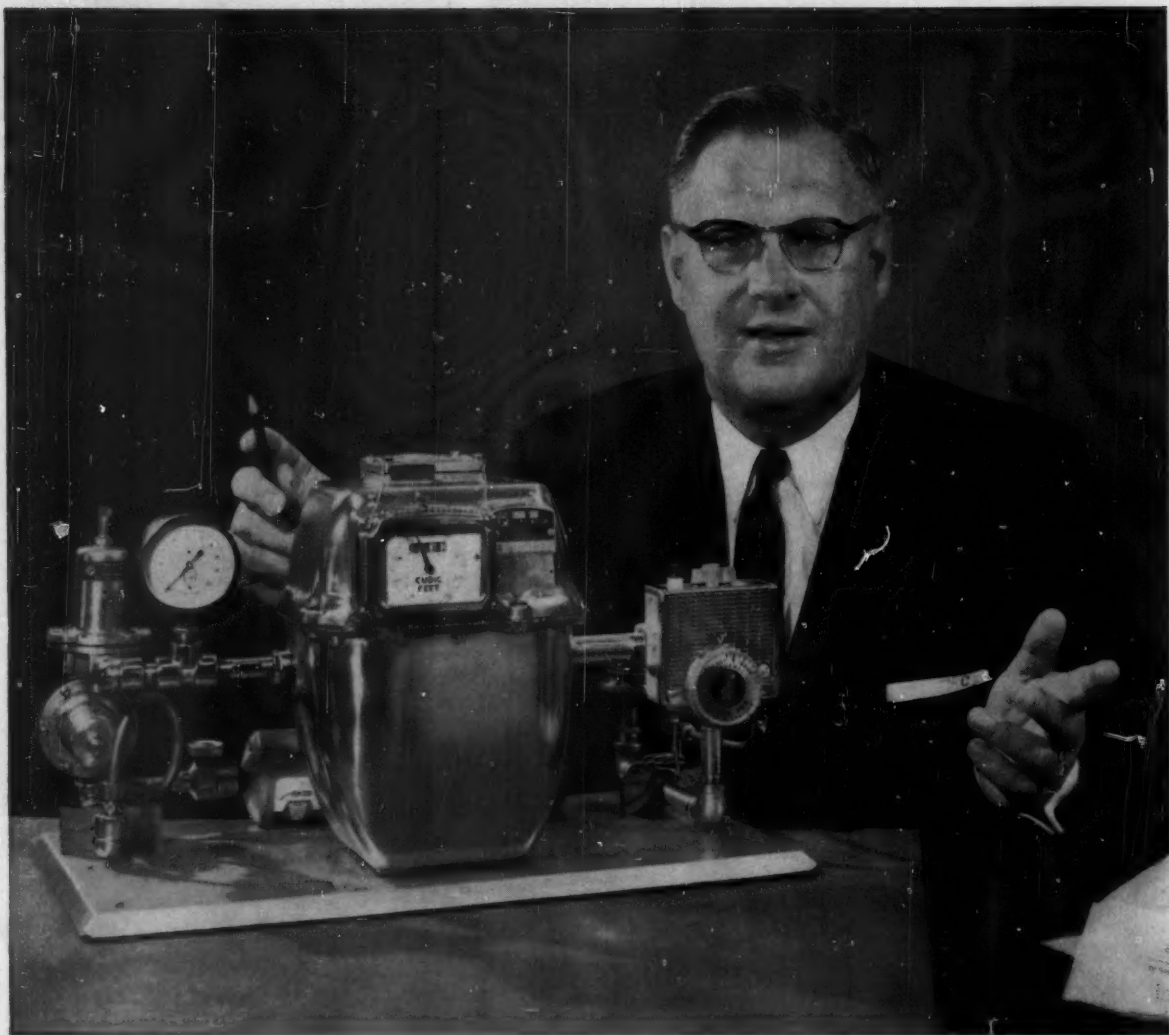
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